CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

DRAFT

84.403E

535 MISSION STREET

OFFICE BUILDING

ENVIRONMENTAL IMPACT REPORT

DRAFT EIR PUBLICATION DATE: JUNE 20, 1986

DRAFT EIR PUBLIC HEARING DATE: JULY 24, 1986

DRAFT EIR PUBLIC COMMENT PERIOD: JUNE 20, 1986 TO AUGUST 4, 1986

WRITTEN COMMENTS SHOULD BE SENT TO
THE ENVIRONMENTAL REVIEW OFFICER
450 McALLISTER STREET, SAN FRANCISCO, CA 94102

City and County of San Francisco
Department of City Planning

450 McAllister Street
San Francisco, CA 94102

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DATE: June 20, 1986

TO: Distribution List for the 535 Mission Street Project Draft EIR

FROM: Barbara W. Sahm, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for the 535 Mission Street Project

This is the Draft of the Environmental Impact Report for the 535 Mission Street project. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses" which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification; others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Summary of Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.

Department of City Planning
Office of Environmental Review
450 McAllister Street, 5th Floor
San Francisco, CA 94102
Attn: Ms. Carol Roos, EIR Coordinator
84.403E - 535 Mission

RETURN REQUEST REQUIRED FOR FINAL ENVIRONMENTAL IMPACT REPORT

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

To: Department of City Planning,
Office of Environmental Review

Please send me a copy of the Final EIR.

Signed: _____

Print Your Name and Address Below

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DEPARTMENT OF CITY PLANNING

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535 Mission Street
office building :
1986.

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INTRODUCTION

This introduction explains the process of tiering environmental impact reports, and describes tiering in relation to this Draft Environmental Impact Report for the proposed 535 Mission St. project.

TIERED ENVIRONMENTAL IMPACT REPORT

Where a prior environmental impact report (EIR) has been prepared and certified for a program, plan, policy or ordinance, the lead agency for a later project that meets specified requirements must examine significant effects of the later project on the environment, with exceptions, by using a tiered report whenever feasible as determined by the lead agency. (See California Public Resources Code, California Environmental Quality Act (CEQA), Sections 21093 and 21094, including amendments effective January 1, 1986.)

The law states the Legislative intent, finding and declaring that:

> Tiering of environmental impact reports will promote construction of needed housing and other development projects by 1) streamlining regulatory procedures, 2) avoiding repetitive discussions of the same issues in successive environmental impact reports, and 3) ensuring that environmental impact reports prepared for later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate upon environmental effects which may be mitigated or avoided in connection with the decision on each later project; [and] that tiering is appropriate when it helps a public agency to focus upon the issues ripe for decision at each level of environmental review and in order to exclude duplicative analysis of environmental effects examined in previous EIRs.

The law directs that where a prior EIR has been prepared and certified as noted above, the lead agency shall examine significant effects of the later project on the environment by using a tiered EIR, except that the report on the later project need not examine those effects which were either mitigated or avoided as a result of the prior EIR, or, examined at a sufficient level of detail as a result of the prior EIR to enable those effects to be

mitigated or avoided by site-specific revisions, the imposition of conditions, or other means in connection with the approval of the later project.

535 MISSION STREET

A tiered environmental impact report has been prepared, and is presented herein, for the proposed 535 Mission St. project pursuant to Sections 21093 and 21094 of CEQA. This EIR is tiered from the EIR for the Downtown Plan (EE81.3, Final EIR certified October 18, 1984). The cumulative impacts of the development forecast in the downtown C-3 districts of San Francisco to the year 2000, including this project, are addressed in the Downtown Plan EIR. That cumulative analysis is not repeated in the EIR for this project.

The EIR for 535 Mission St. identifies the project in relation to the cumulative impacts forecast in the prior EIR. (The Downtown Plan EIR may be examined at the Department of City Planning, 450 McAllister St., San Francisco, the San Francisco main library; and various branch libraries.)

The 535 Mission St. EIR analyzes project-specific impacts. It discusses potentially significant effects of the project that were not examined in the Downtown Plan EIR and includes applicable mitigation measures for site-specific effects.

I. SUMMARY

A. PROJECT DESCRIPTION

Bredero-Northern, a California partnership, proposes to construct a 300-ft.-tall, 23-story (plus basement) office building. The project architect is Heller & Leake of San Francisco.

The project site encompasses Lots 68 and 83 of Assessor's Block 3721, the block bounded by Mission, First, Howard and Second Sts., south of Market St. The site fronts Mission St., Shaw Alley and Minna St. The site is occupied by two buildings: a three-story and a four-story building with about 82,500 sq. ft. together, including 21,240 sq. ft. of retail, 18,540 sq. ft. of light manufacturing, 19,800 sq. ft. of downtown support, 5,040 sq. ft. of office and about 17,880 sq. ft. of storage uses. Both of the buildings, 531 and 535 Mission St. would be demolished for the project. There are currently about 71 employees on the site.

The 300-ft.-tall project would be a 23-story building including a 16-ft.-tall mechanical penthouse, plus one basement. As calculated under the Downtown Plan, the building would contain about 255,010 gross sq. ft. (gsf) of floor area excluding all non-office area. This would result in a Floor Area Ratio (FAR), the ratio of office area (excluding space not included in the gross floor area, and thus not included in the FAR calculation, such as retail, parking and mechanical space) to site size, of about 15.6:1 for the 16,320-sq.-ft. development site. The overall FAR for the preservation and development lots would be less than, or equal to, 9:1.

The main building entrance would be on Mission St. Access to two truck loading docks, basement van loading spaces, and parking would be from Minna St. The basement level would contain about 40 short-term valet parking spaces, two van loading spaces and mechanical space. The ground floor would contain lobby, retail, two freight loading spaces and mechanical equipment. The second floor would contain office space, and a winter garden, amphitheater and sun terrace adjoining the adjacent sun terrace of the 100 First St. office building. Floors three through 22 would contain office space; the 23rd penthouse floor would contain mechanical equipment.

The building would include about 255,010 gsf of office space, 5,000 gsf retail, 5,700 gsf of open space, 8,000 gsf of mechanical space and about 11,000 gsf of parking. Total net changes in floor area for the site would be an increase of about 249,970 sq. ft. of office, and decreases of about 16,240 sq. ft. of retail, 18,540 sq. ft. of light manufacturing, 19,800 sq. ft. of downtown support, and 17,880 sq. ft. of storage. Parking and open space would be new uses on the site.

The project would incorporate about 108,130 sq. ft. of transferred development rights (TDRs) from as yet unidentified sites (preservation lots). The project would comply with the height limit for the site. It would require an exception from the Planning Code regarding separation of towers, and the bulk limits (in the upper tower). The project would require an exception to the Building Code, as the building would not be set back five feet from the east property line.

Demolition of the two existing buildings on the site, proposed to begin in early 1987, would take about eight weeks. Construction would then continue for 96 weeks, a total expected 24-month construction period, until anticipated project completion and initial occupancy in 1989-90.

B. MAIN ENVIRONMENTAL EFFECTS

LAND USE AND ZONING (see pages 59 to 68)

The site is in the C-3-0 (Downtown Office) Use District, within the 550-S Height and Bulk District. The project would replace two low-scale buildings containing downtown service/support, light industrial, retail and office and storage uses with office, retail, open space and parking uses in a high-rise tower. The project would be similar to development on blocks to the north and east, and to the adjacent 100 First St. project, currently under construction east of the project site. The project would differ from development west, south and immediately north (the north side of Mission St.) of the project site. The project would represent the continuing expansion of the downtown financial district into the area surrounding the Transbay Terminal, into an area identified for such development in the Downtown Plan.

The project would provide open space, a childcare facility and art work, and would comply with the height, average floor sizes and diagonal dimensions, requirements of the City

Planning Code. The project would require an exception to the Planning Code regarding separation of towers as it would encroach into the area of the interior lot line setback requirement on the west (Shaw Alley) facade by about three ft.; compensating setbacks are proposed.

The separation of tower setback requirements also apply to interior lot lines; exceptions may be allowed if the adjacent property would not be developed above a certain height. In the case of the project, the eastern interior lot line would abut the 100 First St. sun terrace, which will not exceed about 21 ft. in height; the project would not include the required setback from the interior lot line, and the sponsor would seek an exception to this requirement. Allowable exceptions to these requirements are provided in the Planning Code (Section 132, subsection (c)2(A) and (B)), subject to approval under Section 309. The project would also require an exception from bulk requirements in the upper tower, in accordance with Section 272(a) subject to approved under Section 309 (the project would exceed the maximum length of 130 ft. for the upper tower by about 15 ft.).

URBAN DESIGN (pages 69 to 82)

The project would demolish two buildings. The Goodyear Building at 535 Mission St., is rated "C" by the Foundation for San Francisco's Architectural Heritage. Neither building is rated in the 1976 Department of City Planning Inventory, or designated for architectural merit in Categories I to IV or in conservation districts of the Downtown Plan. The 300 ft. tall project would consist of a base, an articulated office tower, and an octagonal pitched and stepped roof. Set backs above the base and on upper floors are intended to reduce the apparent bulk of the building. The facades would be faceted and sculpted and decoratively detailed.

The 23-story office tower would be visible against taller buildings in the background from long range viewpoints, such as Twin Peaks, Potrero Hill and the San Francisco - Oakland Bay Bridge. The tower would be similar in height and scale to other high-rises in the project area. It would be smaller in height and scale than some other highrises in the project area, such as the Five Fremont and the 100 First St. project. It would be larger in scale and height than existing small-scale, low- and mid-rise buildings in the same block and the South of Market area.

SHADOW AND WIND (pages 83 to 93)

The project would cast no shadow on any Recreation and Park Department property during the hours defined by Proposition K and would thus comply with the Park Shadow Ban ordinance. The project would not cast new shadow on the Transbay Terminal open and passenger unloading area because of the intervening 100 First St. building. The project would not cast any new shadows on the Fremont Center Plaza. The project would cast new shadow on four private, publicly accessible open spaces: Golden Gate University open areas, Tishman Plaza, the 100 First St. sun terrace and the proposed project open space. Project shadows would fall on Golden Gate entry plaza between the hours of 8 a.m. and noon March through September. The project would shade about 1,000 sq. ft. (about 10%) of the Tishman plaza around 10 a.m. October through February. The project would shade the 14,800-sq.-ft. 100 First St. sun terrace: in December, the project would add new shadow to about two percent of this terrace at 10 a.m. (existing shadow covers about 30%), about three percent at noon (existing shadow covers about 70%); at 3 p.m. about 100% of the 100 First St. sun terrace is covered by existing shadow. In March, the project would newly shade 20% to 65% of the 100 First St. sun terrace between noon and 3 p.m. (existing shadow covers 15% to 30%). In June at 3 p.m., the project would newly shade about 70% of the 100 First St. sun terrace (existing shadow covers about ten percent), and in September, it would newly shade 15% to 50% between noon and 3 p.m. (existing shadow covers between five percent and 50%). During the above times, the project and existing shadow would cause the 100 First Terrace to be shaded by about 35% to 100%. The project would cast shadow on its own sun terrace after about 1 p.m. year round. After about 1 p.m., more than 50% of the project sun terrace would be in shade; the shadow would increase throughout the afternoon, up to 100%. Up until about 1 p.m., the addition of the project open space to the 100 First St. sun terrace would represent a net increase in open area in the sun.

A wind tunnel test of the project indicates that existing winds do not exceed the 11 mph pedestrian comfort criterion or the seven mph seating comfort criterion established in the Downtown Plan. The project would cause wind speeds to increase at 15 of 24 locations monitored (by between one and three mph), to decrease at five locations (by one mph), and to remain the same at three locations (these numbers add to 23 locations, one additional location, on the project sun terrace does not exist and so could not be tested under the existing scenario, but was tested for the project condition). With the project in place,

winds in the vicinity would not exceed the 11 mph pedestrian comfort criterion; with the project, the seven mph seating comfort criterion would be met on the 100 First St. sun terrace, the project open space and the Transbay Terminal. Thus, conditions with the project in place would not exceed the applicable standard at any tested location.

CULTURAL RESOURCES (pages 93 to 94)

There is no evidence that prehistoric archaeological remains exist at the project site. The project site vicinity was first settled in the Gold Rush (1849–1857) Period, and remained developed through the City Building Period (1858–1886), the Late Nineteenth Century Period (1887–1906) and the Twentieth Century Period (1906–present). The existing buildings on the project site are from the last period. It is almost certain that cultural remains from all four periods would be found at the project site. The site area was filled rather than cut, so it is possible that any remains, particularly from the Gold Rush Period, would be reasonably intact and of potential significance. Likely remains include architectural remnants, trash pits and privies. The project excavation to a depth of about 11 to 12 ft. would be about the same as the depth of existing basements.

TRANSPORTATION (pages 94 to 112)

A sidewalk detour and curb lane closure on the Mission St. project frontage would be necessary during construction. Sidewalks on the project frontages along Shaw Alley and Minna St. would be closed during construction. Demolition and excavation (separate phases) would each generate an average of 15 to 25 truck round trips per day. Construction truck traffic would be limited to the period between 9 a.m. and 3:30 p.m. Construction traffic and closure of the curb lane on the south side of Mission St. in front of the site would slow traffic movements, including those of Muni buses using Mission St.

The project would generate about 2,090 net new person trips per day. About 490 new outbound trips would occur during the p.m. peak period, 310 of these during the p.m. peak hour. The project would include about 40 short-term valet parking spaces where there are now none. Estimated equivalent daily parking demand from the project would be for about 190 spaces, resulting in an unmet demand of 150 spaces. The proposed project would generate about 90 new pedestrian trips on the adjacent sidewalks during the noon 15-minute peak period and about 60 new pedestrian trips during the p.m. 15-minute peak period. Sidewalk operations, currently in the unimpeded and impeded ranges at

locations adjacent to the project site during both the noon hour and p.m. peak hour, would remain in that range with the addition of the project to existing conditions; the project would cause existing conditions to change at two of the four locations studied (from unimpeded to impeded) in the noon hour peak (not in the p.m. peak hour, however).

The project would add about 155 outbound trips to Muni, 125 outbound trips to BART, and 95 new outbound trips to other transit agencies during the p.m. peak period in the year 2000. The project would generate an annual cost deficit to Muni of about $39,060, which would be less than the project's contributions to the General Fund, the Transit Development Impact Fee, and sales tax revenues. The project would result in an annual net operating deficit to BART of about $187,200. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

The EIR for the Downtown Plan (EE81.3, Final EIR certified October 18, 1984, available for review at the Department of City Planning, the main San Francisco library and various branch libraries) forecast employment and development in the downtown C-3 districts to the year 2000, and evaluated the impacts of this forecast employment and development. Project effects would fall within this forecast. The summary statements below, and those in the Impacts Chapter regarding cumulative development, are drawn from that EIR. The lengthy and detailed analysis presented in the prior EIR will not be repeated in this EIR for the 535 Mission St. project. The relevant material in the Downtown Plan EIR is incorporated by reference in the appropriate section of the EIR, by topic.

The transit demand from the project would represent about 0.2% of the total transit demand in the year 2000. Cumulative development under the Downtown Plan to the year 2000 in conjunction with planned capacity increases of transit carriers would be expected to cause the following changes in transit levels of service during the peak period: Muni Northwest Corridor, E to D; BART Transbay, F to E; AC Transit, C to D; Golden Gate Ferry, B to A; Tiburon Ferry, A to B; and Caltrain, B to C.

With cumulative development, by the year 2000, sidewalk and crosswalk operations would be in the impeded range for all locations studied for the project, except for the crosswalk across Mission St. at First St., during the p.m. peak which would be in the constrained range (the project pedestrian traffic would represent about 14% of the pedestrian volume).

Cumulative development, including that from the proposed project, by the year 2000 would be expected to further exacerbate the existing peak-hour vehicle Level of Service (LOS) F conditions at the intersection of First and Harrison Sts. and worsen existing LOS E conditions at the intersection of Mission and Beale Sts. to LOS F. Project traffic alone would not cause the LOS at either intersection to change.

The project would represent about 0.1% of total outbound regional auto demand on major corridors (bridges and freeways) in the year 2000. The project percent would not be measurable against day-to-day fluctuations in traffic volumes.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent about 0.3% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected. Alternatively, if the goals of the Downtown Plan are achieved, total parking demand in the year 2000 would increase by about 6% over 1984 and there would not be a parking deficit.

The City Planning Code would require three loading spaces or their equivalent for the project, and the project would provide the equivalent of three spaces.

AIR QUALITY (pages 112 to 116)

Project-related vehicular traffic would add to cumulative regional pollutant emissions. Project-related traffic would contribute about one percent of total incremental emissions resulting from C-3 development projected in the Downtown Plan EIR. Emissions of total suspended particulates (TSP) generated by the project and cumulative development would increase TSP concentrations, which would increase the frequency of TSP standards violations in San Francisco, with concomitant health effects and reduced visibility.

Project emissions alone would not cause any standards to be violated. Currently, the eight-hour CO standard is estimated to be exceeded at the intersection of Beale and Mission Sts. However, local CO concentrations are predicted to be less in 2000 than in

1984, and would not violate the standards at Beale and Mission Sts., because the effects of emission controls on new vehicles would offset increases in traffic volumes and congestion.

CONSTRUCTION NOISE (pages 116 to 120)

Project construction would temporarily increase noise and vibration levels in the area of the site during the 24-month construction period. Highest average construction noise levels experienced in offices, stores, and school facilities near the site would interfere with speech. Pile driving and the operation of construction equipment could temporarily raise the noise level to 103 dBA with windows open and 88 dBA with windows closed at Golden Gate University, where classes are held until 9:30 p.m. Evening pile driving would be more noticeable to occupants of the University with the reduced background traffic noise. The sponsor must obtain a special permit for pile driving after 8 p.m. Pile driving would cause vibrations, which are more irritating to some people than noise, in adjacent and nearby buildings.

EMPLOYMENT (pages 121 to 124)

The project would displace four existing on-site businesses that provide about 71 jobs. These jobs are mostly service sector. The project would continue the trend of displacement of industrial and blue collar jobs by office and business service jobs. After completion, the project would accommodate a total of about 988 permanent full-time jobs, an increase of about 917 for the site. About 96% of these employees would be office workers. About 2,130 additional jobs in the Bay Area would result from the employment multiplier effect of project operation. The project would require about 130 person-years of construction labor. About 220 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction.

GROWTH INDUCEMENT (pages 124 to 126)

Increases in downtown office space from the proposed project would contribute to growth of local and regional markets for housing, goods and services. Although employment growth would not be reflected directly in increases in demand for housing and City services to residents, it is expected that some downtown workers would want to live in San Francisco, intensifying the demand for housing, retail goods and services. The project

would continue the trends of loss of industrial and blue collar jobs and the increase in land values and rents in the South of Market area. The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under consideration would be required to accommodate new development and employment due to, or induced by, the project.

C. MITIGATION MEASURES

Major measures identified that would mitigate potentially significant environmental effects include the following:

MEASURES PROPOSED AS PART OF THE PROJECT

- The project sponsor would contribute funds for maintaining and augmenting transportation service in an amount proportional to the demand created by the project, as provided by the Board of Supervisors Ordinance No. 224-81. Should said ordinance be declared invalid by the courts, the project sponsor has agreed to participate in any subsequent equivalent mitigation measures adopted by the Planning Commission or the City in lieu thereof, which would apply to all projects similarly situated.

- During the construction period, construction truck movement would be permitted only between 9 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses on Mission St. prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic effects of lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent projects that are planned for construction or later become known.

- The project sponsor shall: 1) participate with other project sponsors and/or the San Francisco Parking authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which

cannot reasonably be made by transit, and 2) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.

- As recommended by the Environmental Protection Element of the San Francisco Comprehensive Plan, an analysis of noise reduction requirements would be prepared for the project sponsor, and recommended noise insulation features would be included as part of the project.

- The project sponsor would require that the construction contractor predrill holes for piles, in order to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile. The project sponsor has agreed to restrict pile driving to hours required by the Department of Public Works.

- The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance to neighboring uses. Pile driving would be limited to the hours between 11 p.m. and 7 a.m. Mondays through Saturdays and 11 p.m. and 8 a.m. on Sundays to minimize disturbance to the occupants of Golden Gate University. This would require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2907(c).

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Through San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP), PG&E could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place at off-peak hours and on weekends, and at the same time that the street would be opened for construction of the project.

- The City could implement the transportation improvements described in the Downtown Plan. Cumulative transportation impacts within San Francisco would be reduced by the improvements, and to the extent that San Francisco could influence transportation improvements recommended by the Plan for areas outside the City, cumulative regional impacts caused by downtown growth would also be reduced.

D. ALTERNATIVES TO THE PROPOSED PROJECT

ALTERNATIVE A: NO PROJECT

This alternative would entail no change to the site. The proposed project would not be built there. The existing two site buildings (one of which is rated "C" by Heritage), which house four businesses with 71 employees, would be retained.

This alternative could result in the development of other office space, possibly a high-rise building comparable to the project, at another location. Alternative development within the San Francisco downtown area would result in some of the same (or similar) impacts as described for the project. The effects of development would depend largely on the location chosen, and cannot be accurately determined. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

ALTERNATIVE B: 9:1 FAR, NO TRANSFER OF DEVELOPMENT RIGHTS

This alternative considers a building without TDR, with an FAR of 9:1, the basic allowable FAR. Office area would be 146,525 sq. ft., compared to 255,010 sq. ft. for the project. Retail space (4,540 sq. ft., compared to 5,000 sq. ft. for the project) would be located on the ground and second floors, and a restaurant (2,900 sq. ft. – there would be no restaurant in the project) would be located on the second floor. More valet parking spaces (45 compared to 40) would be provided in the basement as no space would be needed there for service vehicle loading due to the smaller alternative. This, alternative would satisfy all Downtown Plan requirements including on-site publicly visible art work, open space, and childcare. The open space requirement for this alternative (2,930 sq. ft.) would be met through the provision of a mezzanine terrace (2,025 sq. ft.) and development of off-site open space, and/or an in-lieu contribution. In design, this alternative would be a glass cylinder with concrete facades on the east and west, above a six-story concrete base, split in the center on the Mission and Minna St. faces to reveal the central glass element. The building would be capped by twin turrets.

Shadow effects would be the same as with the project on the Golden Gate University entry plaza. As with the project, it would not shade the Fremont Center plaza. The alternative would shade more of the adjacent 100 First St. sun terrace than the proposed

project in afternoon hours, since it would not have the diagonal cut on the southeast corner of the building that the project would have and which would allow sun onto the terrace. This alternative would result in higher wind speeds on the adjacent sun terrace than the project. Otherwise, wind effects would be similar to those of the project. The alternative would provide employment for about 580 employees, compared with about 988 employees for the proposed project. Transportation effects would be about 40% less than with the project. The construction period would be shorter because the building would be smaller, and thus construction noise effects would also occur for a shorter period of time. Any effects on cultural resources would be as for the project.

ALTERNATIVE C: NO EXCEPTION TO REQUIRED APPROVALS

C1: NO EXCEPTION TO PLANNING CODE SEPARATION OF TOWERS OR BULK REQUIREMENTS

This alternative would include setbacks above the base as called for in Section 132.1 (c) Seperation of Towers. This alternative would be set back 15 ft. from the eastern interior property line and 15 ft. from the center of Shaw Alley (the project would not be set back from the eastern interior property line). This alternative would not require an easement on the east property line.

This alternative would include 229,550 sq. ft. of office and 5,000 sq. ft. of retail, and 7,200 sq. ft. of open space (compared with 255,010 sq. ft., 5,000 sq. ft. and 5,700 sq. ft. respectively with the project). Other features of this alternative would be as for the project. Traffic, air quality and energy impacts of this alternative would be about ten percent less than with the project. Shadow impacts would be as for the project, as would noise impacts and any impacts on cultural resources.

C2: NO EXCEPTION TO BUILDING CODE FIVE FOOT SETBACK FROM EAST PROPERTY LINE

The San Francisco Building Code requires a five-foot setback from interior property lines for building walls, with windows, for fire safety reasons unless an easement has been obtained from the adjacent property owner. The project would require such an easement; this alternative would not.

This alternative would include 245,000 sq. ft. of office and 5,000 sq. ft. of retail and 6,400 sq. ft. of open space (compared with 255,010 sq. ft., 5,000 sq. ft. and 5,700 sq. ft. respectively with the project). Other features of this alternative would be as for the project. Traffic, air quality and energy impacts of this alternative would be about five percent less than with the project. Shadow impacts would be as for the project, as would noise impacts and any impacts on cultural resources.

ALTERNATIVE D: NO PARKING

This alternative would be exactly the same as the project except that it would have a smaller basement with no parking for cars (the project would provide 40 spaces). The project would incrementally increase traffic at local intersections; this alternative with no on-site parking would cause less of an increase in traffic at local intersections. All other impacts of this alternative would be as for the project.

II. PROJECT DESCRIPTION

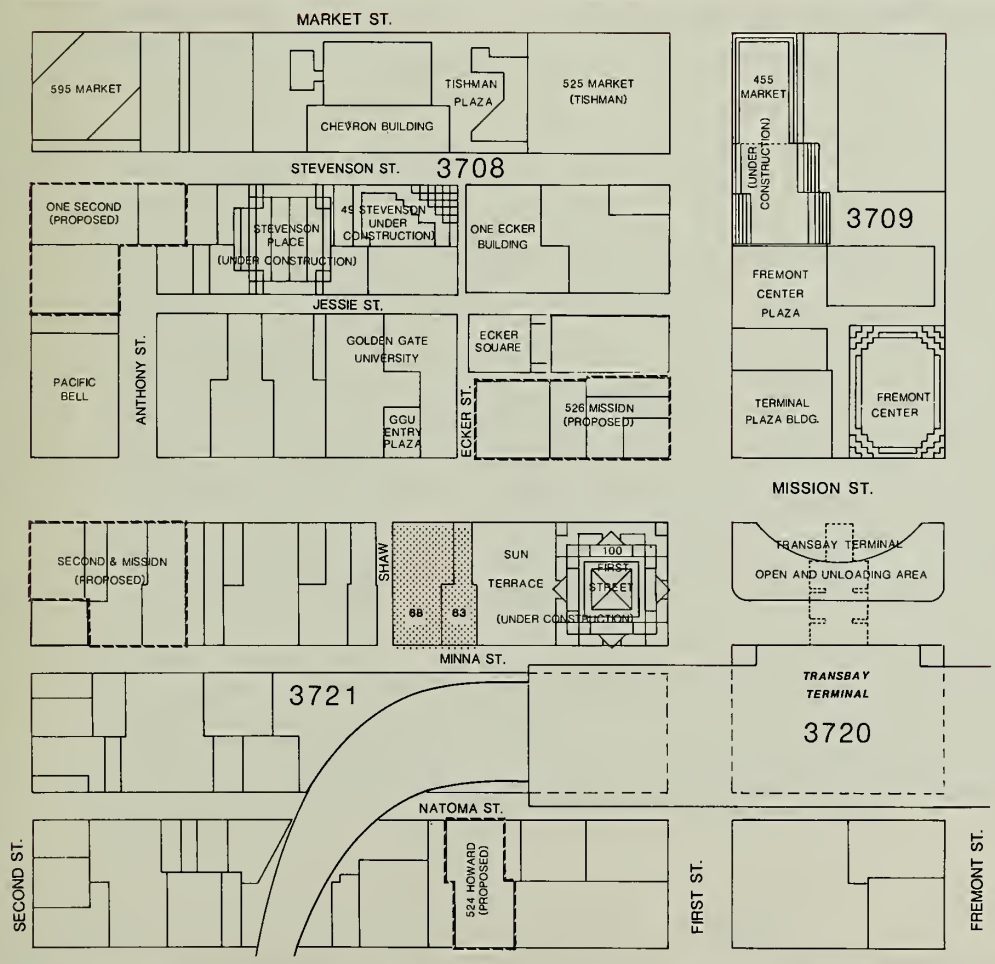
A. PROJECT SPONSOR'S OBJECTIVES

Bredero-Northern, a California Partnership, proposes to build a 23-story, 300-ft.-tall office and retail building on Mission St. between First and Second Sts. The project architect is Heller and Leake. The project sponsor's objectives are to develop high quality office and retail space at one of the City's emerging prime office space locations with excellent transportation access.

B. PROJECT LOCATION

The proposed project would be located at 535 Mission St. on the south side of Mission St. at Shaw Alley, between First and Second Sts. in the City and County of San Francisco, on Lots 68 and 83 of Assessor's Block 3721. The block is bounded by Mission St. on the north, First St. on the east, Howard St. on the south, and Second St. on the west (see Figure 1, p. 17)./1/ The 16,320-sq.-ft. project site is bounded by Mission and Minna Sts. (on the north and south), and Shaw Alley (on the west) and the 100 First St. development (to the east). Golden Gate University is across Mission St. from the site and the Transbay Transit Terminal (referred to herein as Transbay Terminal) at First and Mission Sts. is about one-half block east. The project would replace two buildings, of three and four stories, containing retail, light manufacturing, downtown support, office and storage uses at 531 and 535 Mission St. There are currently 71 employees on the site.

The site is in the C-3-0 (Downtown Office) Use district. The basic Floor Area Ratio (FAR) is 9:1. The 550-S Height and Bulk District for the site allows a maximum height of 605 ft. including an optional upper tower extension of 10% of building height. The S controls apply to four parts of a new building: base, lower tower, upper tower and upper tower extension. The general principle is reduced bulk with increased height. In the S district, the maximum length and maximum diagonal dimensions of the lower tower are 160 ft. and 190 ft., respectively. The maximum average floor size for the lower tower is 17,000 sq. ft., and the maximum floor size is 20,000 sq. ft. For the upper tower, the bulk



PROJECT SITE
(ASSESSOR'S BLOCK 3721
LOT NOS. 68 & 83)

0 200
FEET

FIGURE 1
535 MISSION
PROJECT LOCATION

SOURCE: ESA

controls are: a maximum length of 130 ft.; a maximum average diagonal measure of 160 ft.; a maximum average floor size of 12,000 sq. ft.; and a maximum floor size of 17,000 sq. ft. Allowable exceptions to these bulk maximums are provided in Section 270 and 272 of the Planning Code, subject to approval under Section 309.

The project would require an exception from the required 15-ft. setback from interior property lines, or center of street specified in Planning Code Section 132.1(c), Separation of Towers. Exception to the setback requirement could be permitted in accordance with the provision of Section 309 under Section 132.1 Subsections (c)2(A) and (c)2(B). The project would require an exception from the maximum length in the upper tower, in accordance with Section 272 of the City Planning Code (pursuant to the provisions of Section 309).

C. PROJECT CHARACTERISTICS

Project characteristics are summarized in Table 1. The 300-ft.-tall project would be a 23-story building including a 16-ft.-tall mechanical penthouse, plus one subsurface level. As calculated under the Planning Code, the building would contain about 255,010 gross sq. ft. of floor area, excluding all non-office area. This would result in a Floor Area Ratio (FAR), the ratio of office floor area (excluding retail, parking and mechanical space) to site size, of 15.6:1 for the 16,320-sq.-ft. development site. There would be a lobby and retail area and mechanical space on the ground floor. The project would include 5,700 sq. ft. of open space on-site located on the second floor along with office space, and consisting of an indoor winter garden (1,460 sq. ft.), a sun terrace and an amphitheater on the sun terrace, facing Minna St. This open space would connect directly to the sun terrace under construction as part of the 100 First St. development on the east. The basement level would contain about 40 short-term valet parking spaces and two service vehicle loading spaces. A transformer vault and electrical switch room would be located on the basement level under the Mission St. sidewalk (using existing space). (See Figure 2, p. 21.) Two truck loading docks and a parking ramp would be accessible from Minna St.

The ground floor would contain retail uses, pedestrian circulation with pedestrian entrances on Mission St., and two loading docks and the garage entrance on Minna St. (see Figure 3, p. 22). Stairs located in a triple-height space (stairway) on the easterly side of

TABLE 1: PROJECT CHARACTERISTICS

NUMBER OF STORIES OF NEW CONSTRUCTION/a/		HEIGHT AND BULK MEASUREMENTS (ft.) AND FAR	Allowable	Proposed Project
Retail/Lobby/ Service (loading)	1	Height	550 /b/	300
Office	21	Length (lower tower):	160	160
Mechanical	1	Length (upper tower):	130	145
Total Stories	23	Diagonal (lower tower):	190	174
		Diagonal (upper tower):	160	155
		Volume Reduction	13 %/c/	27 %

Site Size: 16,320 sq. ft.

Basic FAR of 9:1.
TDR/d/ up to 18:1 FAR: 15.6:1/d/

PROPOSED FLOOR AREA OF NEW CONSTRUCTION	Area Applicable To FAR (gsf)	Total Gross Floor Area (gsf)
Basement Parking and Service	0 /e/	16,320
Lobby, Retail and other Ground Floor Uses	0 /e/	16,320 /f/
Offices	255,010	255,010
Mechanical (23rd Floor)	0 /e/	8,000
TOTAL	255,010	295,650

/a/ Excluding the basement level, containing parking, mechanical equipment and building storage.
/b/ The project site is located in a 550-S Height and Bulk District. Under Planning Code Section 263.5, additional height up to ten percent (605 ft.) may be allowed, provided the volume of the upper tower extension (above 550 ft.) is reduced.
/c/ The volume reduction applies above 200 ft.; 13% is the minimum required.
/d/ To permit the FAR on the development site to exceed 9:1, about 108,130 gross sq. ft. of transferable development rights (TDR) would be transferred from an as yet unidentified site, under Section 128 of the City Planning Code. The Floor Area Ratio (FAR) of the combined development and preservation lots would be less than 9:1.
/e/ In Section 102.8(b)1-16: exclusions from gross floor area in the C-3-0 district are defined. Examples are convenience, retail and personal service and pedestrian circulation and building service space located on ground-floor (not to exceed 75% of ground-floor interior and open space areas), and mechanical and building storage space.
/f/ The project would include about 5,000 gsf. of retail space on the ground floor.

SOURCE: Environmental Science Associates, Inc., and Heller and Leake

the ground floor would lead from the ground-floor lobby to the second-floor sun terrace and amphitheater (see Figure 4, 23). Large windows in the east wall of the stairway would provide natural light from the adjacent sun terrace into the space. The adjacent 100 First St. sun terrace would be accessible through the 535 Mission St. building from the project's sun terrace. The second through 22nd floors would contain office space. The 23rd floor would consist of a mechanical penthouse.

The base, as defined by the Downtown Plan (height equal to 1.25 times the width of the abutting street), would include floors one through seven. The lower tower would be floors eight through fifteen which would contain an average floor size of about 13,300 sq. ft. The upper tower would begin at the 16th floor. The average floor size in the upper tower would be about 9,650 sq. ft.

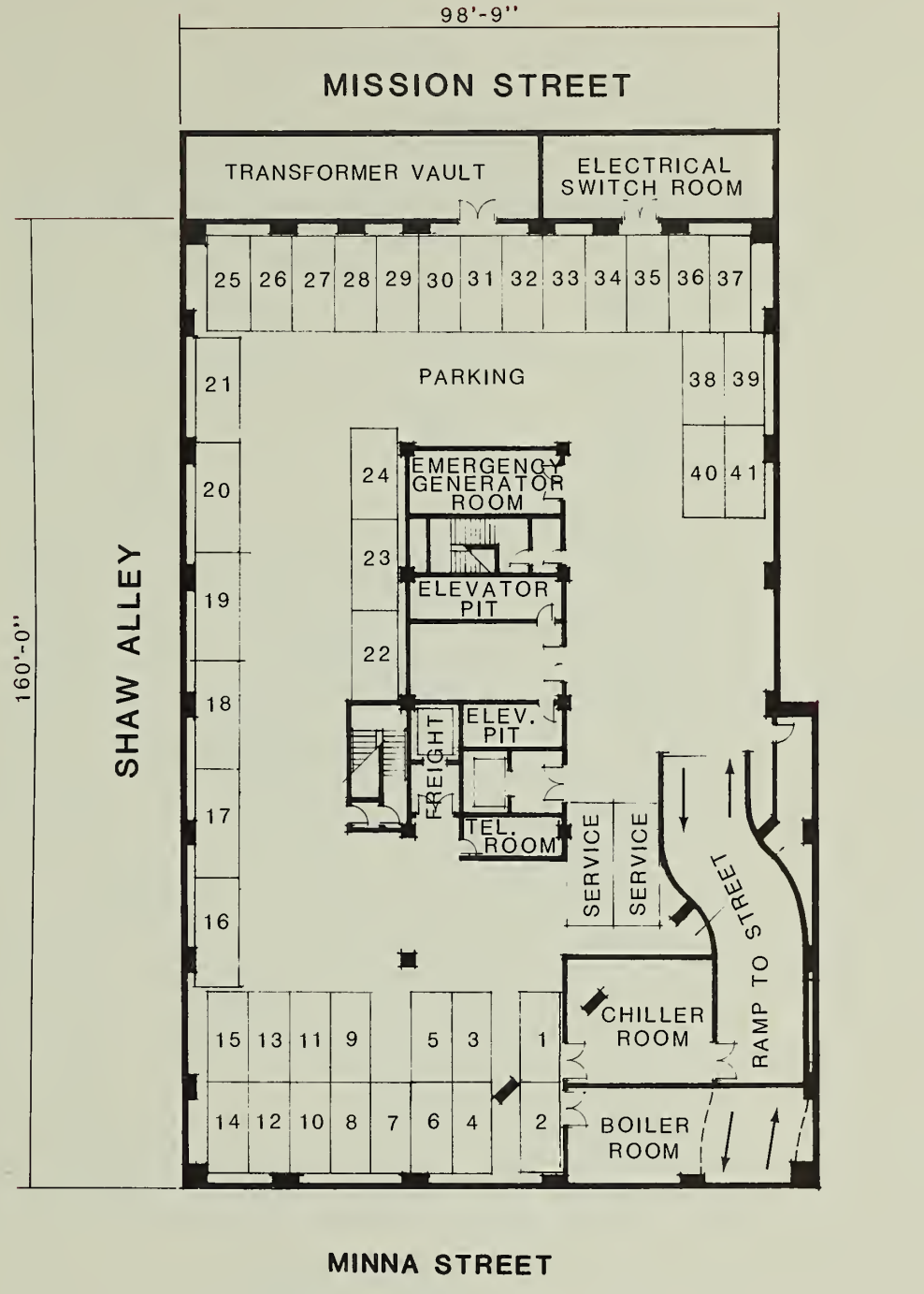
Floor plans and elevations are shown in Figures 2 to 8, pp. 21 to 27.

The building would include about 255,010 gross sq. ft. of office space, 5,000 gross sq. ft. of retail space, about 11,000 gross sq. ft. (about 40 short-term valet spaces) of parking space and about 5,700 gross sq. ft. of open space. Total net changes in floor area for the site would be a net increase of about 249,970 gross sq. ft. of office, and net decreases of about 16,240 gross sq. ft. of retail space, 18,540 gross sq. ft. of light-manufacturing space, 19,800 gross sq. ft. of downtown support space, and 17,880 gross sq. ft. of storage space. The parking and the open space would be new uses on the site.

The project would use about 108,130 gsf of transferred development rights (TDR). The project sponsor has not yet identified buildings from which development rights would be sought. The overall FAR for the development and preservation lots would be 9:1, or less.

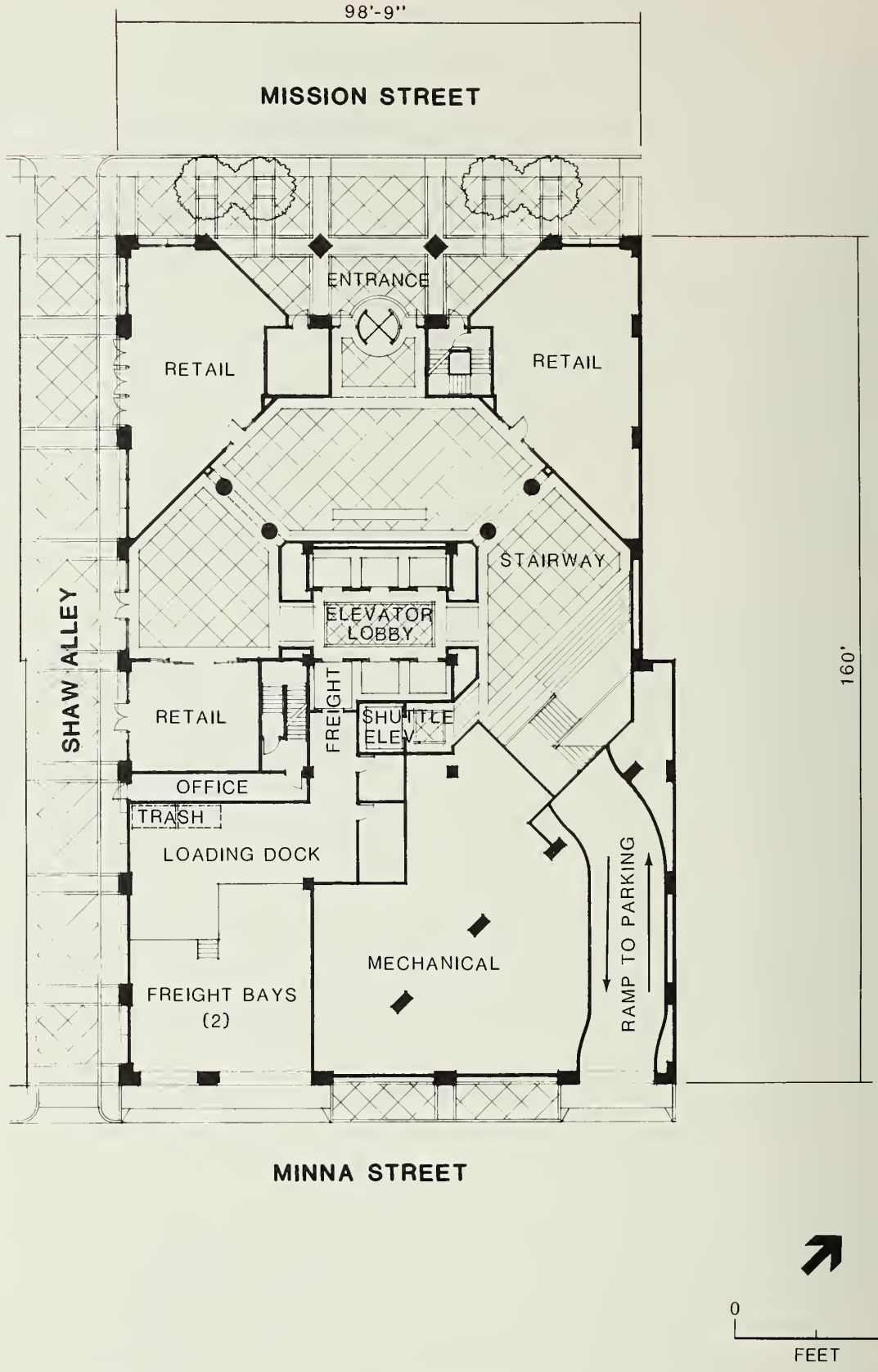
The project would incorporate art as required by the Downtown Plan, provide required open space, on-site as described earlier (5,700 sq. ft.) in excess of the required 5,100 sq. ft.; and meet the childcare requirement in a manner to be determined.

The project would be built to the property lines to the top of the sixth floor, except on the southeast corner, where beginning at the second floor and continuing to the roof, the building would be cut away diagonally from property lines to allow sunlight access to the open space provided by the project and the adjacent 100 First St. project; building



SOURCE: Heller & Leake

FIGURE 2: 535 MISSION
BASEMENT FLOOR PLAN



SOURCE: Heller & Leake

FIGURE 3: 535 MISSION GROUND FLOOR PLAN

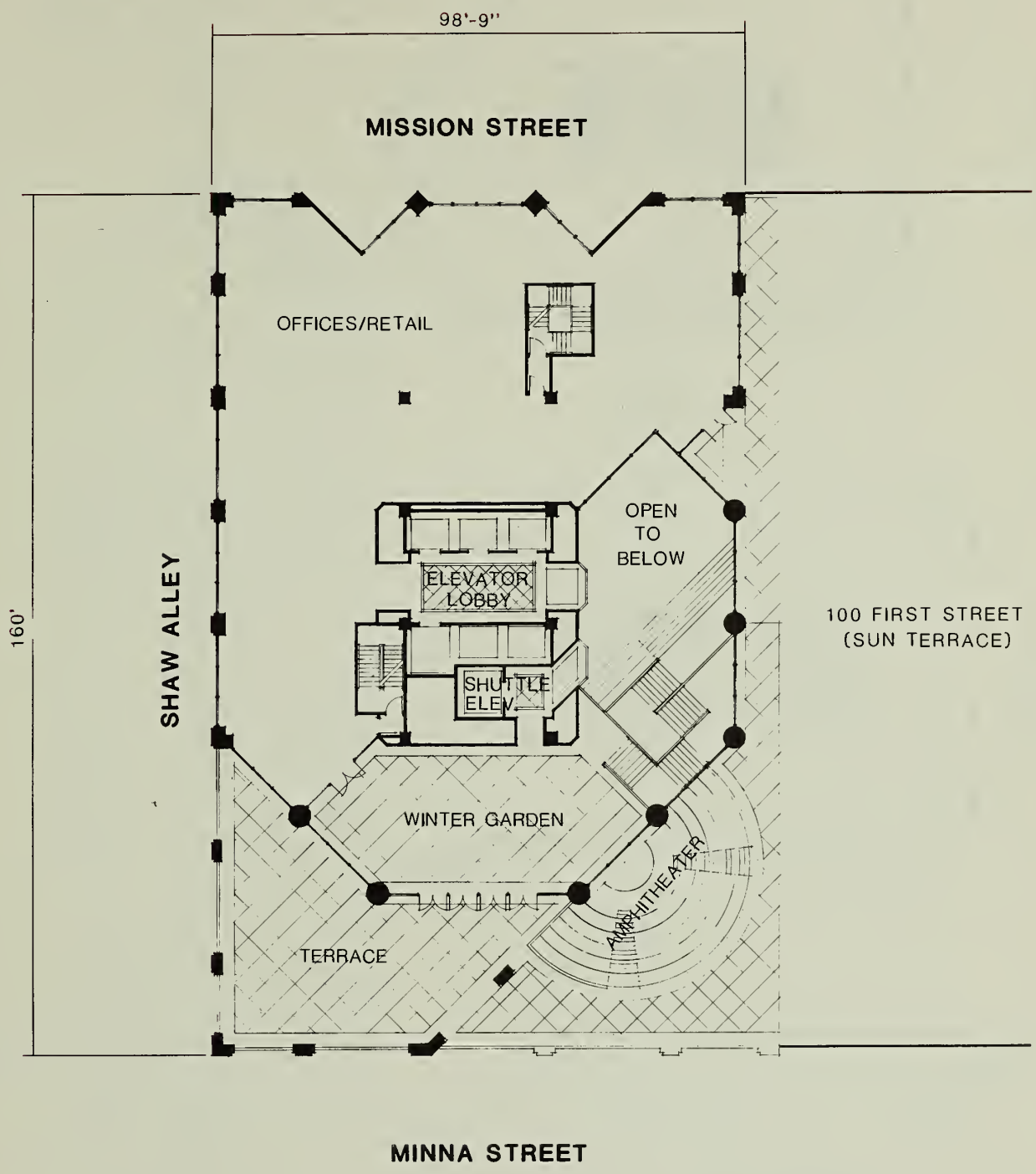
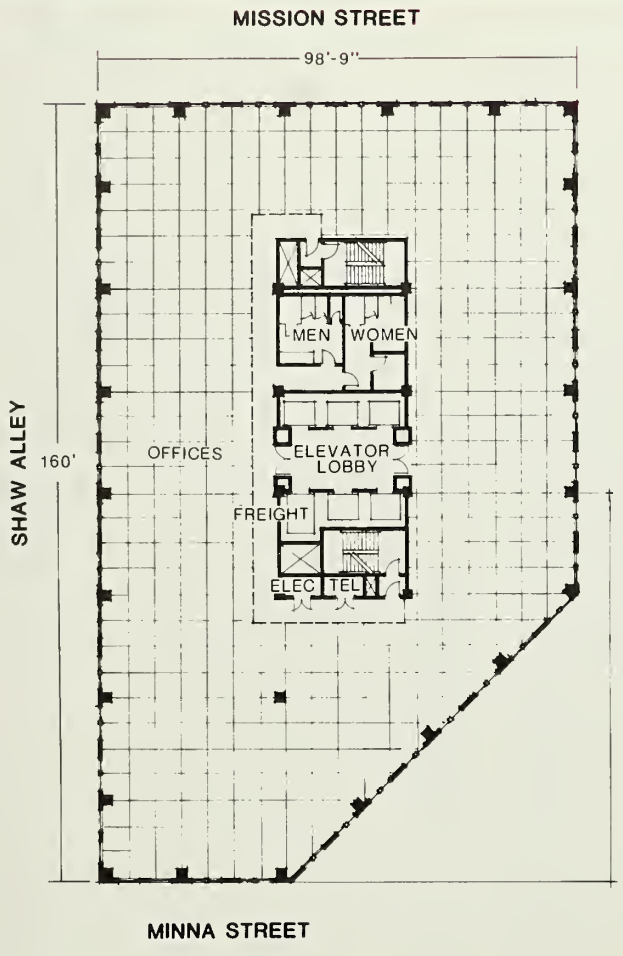
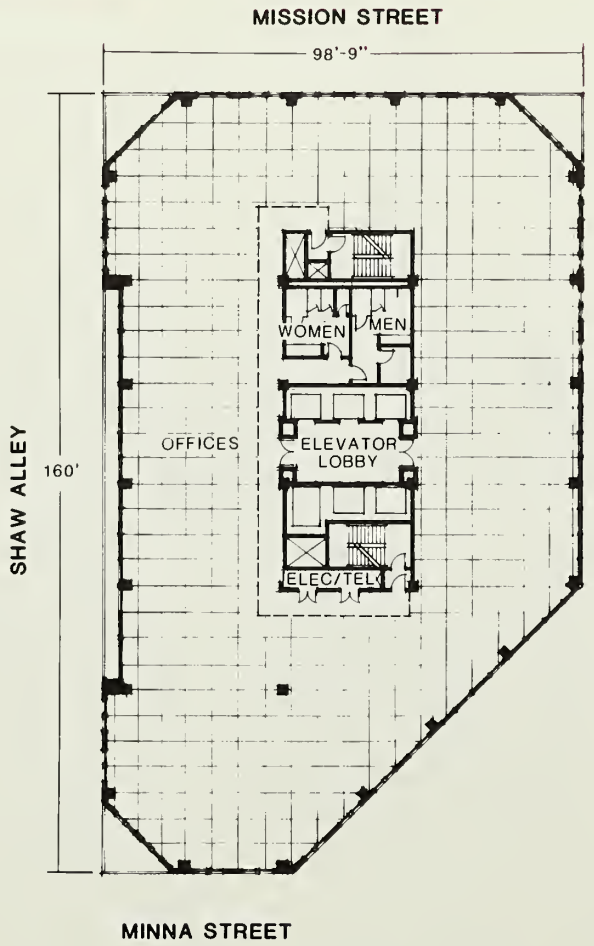


FIGURE 4: 535 MISSION
SECOND FLOOR (TERRACE) PLAN
SHOWING PROPOSED OPEN SPACE

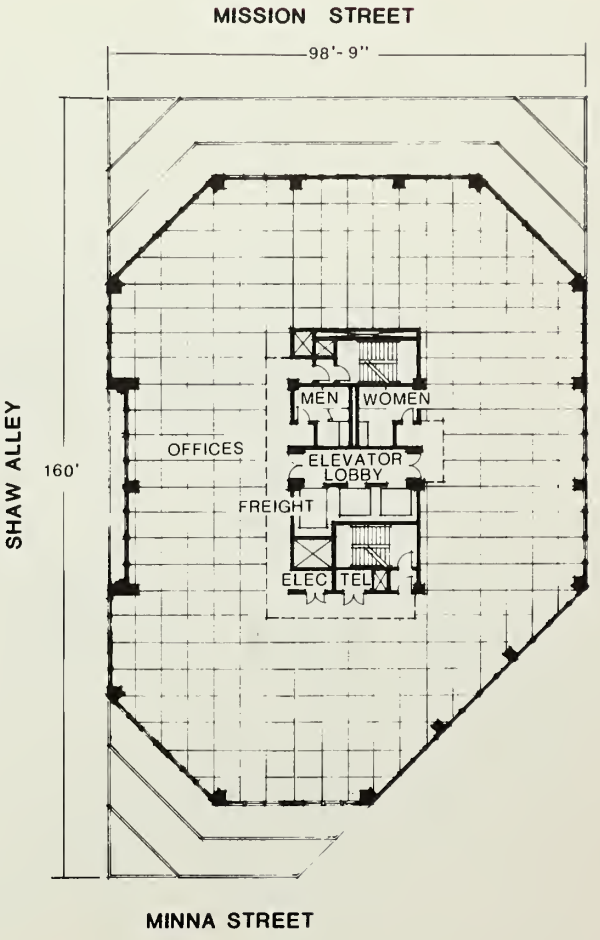
SOURCE: Heller & Leake



BASE FLOOR PLAN



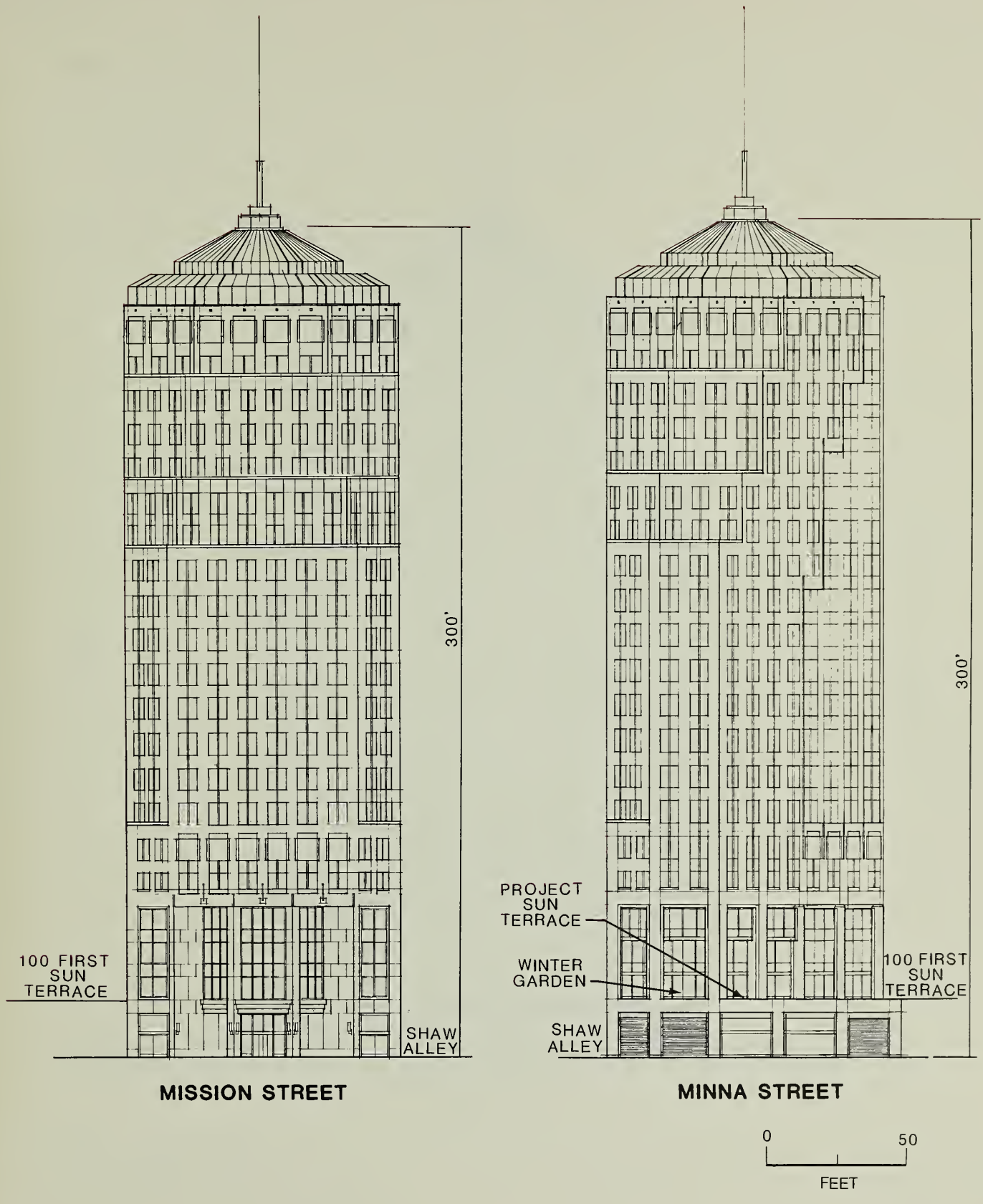
LOWER TOWER FLOOR PLAN



UPPER TOWER FLOOR PLAN

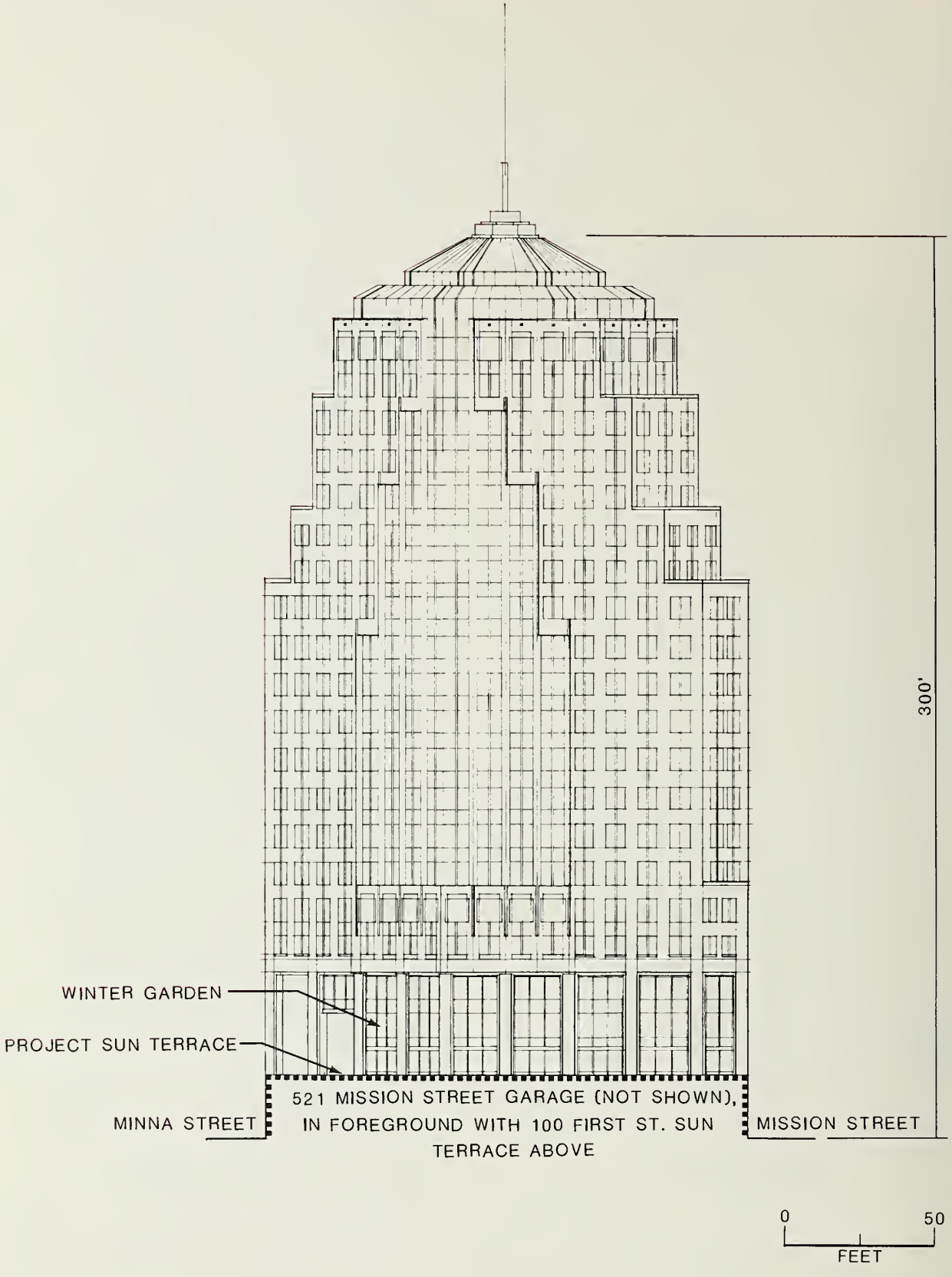
SOURCE: Heller & Leake

FIGURE 5: 535 MISSION
TYPICAL FLOOR PLANS



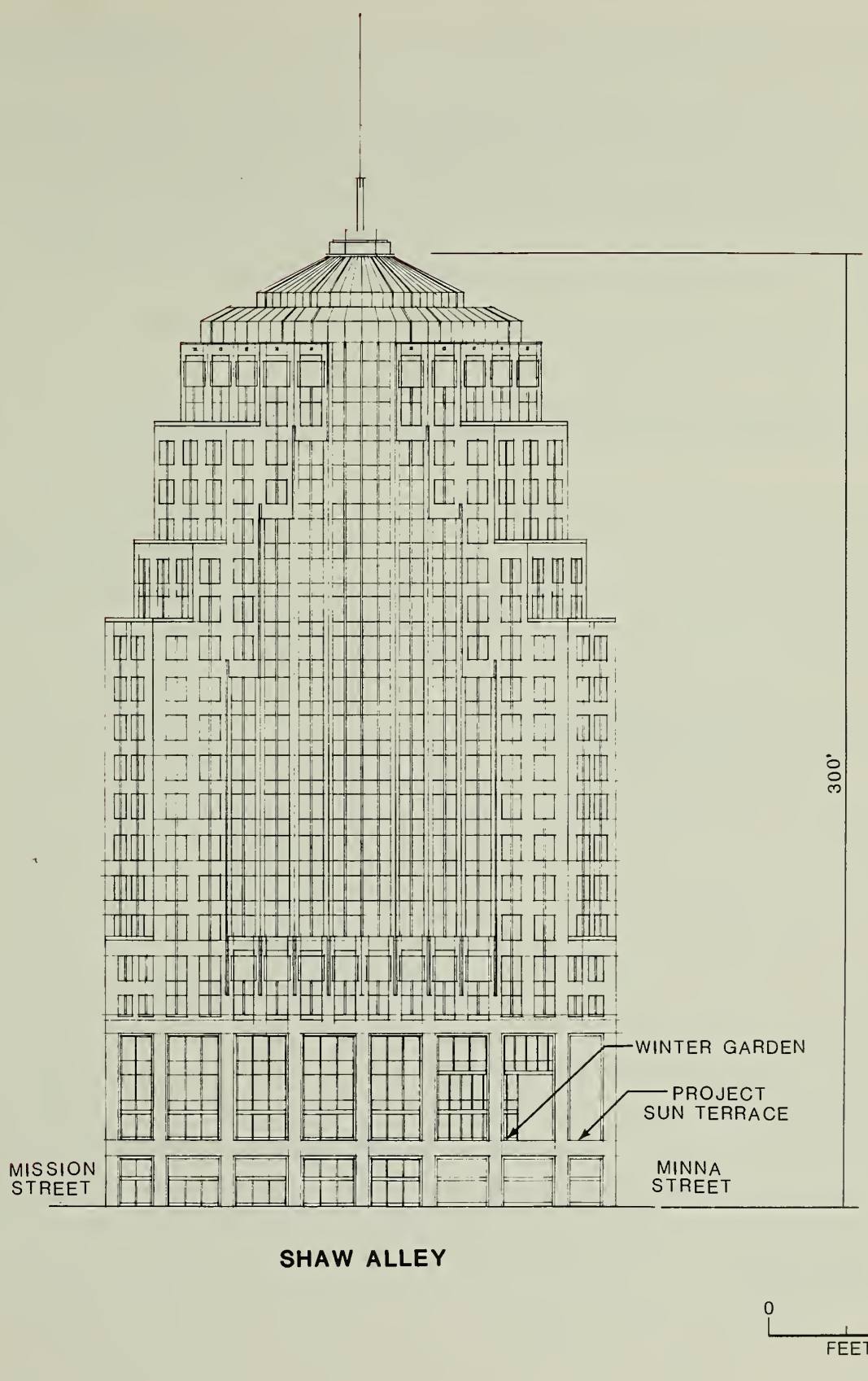
SOURCE: Heller & Leake

FIGURE 6: 535 MISSION
MISSION AND MINNA STREET ELEVATION



SOURCE: Heller & Leake

FIGURE 7: 535 MISSION EAST ELEVATION



SOURCE: Heller & Leake

FIGURE 8: 535 MISSION
WEST ELEVATION

corners would be chamfered beginning at the seventh floor. The building would step in 7 ft. 6 in. from the north and south (Mission and Minna Sts.) faces at the 15th and 17th floors, and again by the same amount at the 20th and 22nd floors. A central indentation on the Shaw Alley (west) face of the building, three ft. deep and 84 ft. wide, would begin at the seventh floor and continue to the 13th floor. At the 14th to 17th floors, the indentation would narrow to 60 ft. in width; above the 17th floor, it would narrow to 21 ft. in width. The mechanical penthouse would have an octagonal pitched and stepped roof form.

D. PROJECT SCHEDULE, COST AND APPROVAL REQUIREMENTS

The project sponsor expects environmental review, project review and detailed design to be completed in the fall of 1986. If the project were approved and building permits issued, demolition and construction would take about 17 to 20 months with interior finishing thereafter. Construction periods are projected as follows:/2/

Ground Clearing	8 weeks
Excavation/Shoring	12 weeks
Foundations	12 weeks
Steel Erection	20 weeks
Exterior Finishing	20 weeks

Initial occupancy is anticipated about 24 months from the start of demolition.

COST

Estimated construction cost of the project would be about $19 million (1986 dollars), including demolition, excavation, building shell and interior improvements./3/ Replacement cost for the entire building, including architectural and engineering fees, and tenant improvements, would be about $58 million./4/ Ground-floor retail space is expected to rent for approximately $30 to $40 per sq. ft. per year. Office space is expected to rent for approximately $28 to $39 per sq. ft. per year. (All figures are in 1986 dollars.)

APPROVAL REQUIREMENTS

Following a public hearing before the City Planning Commission on the Draft EIR, responses to written and oral comments will be prepared. The EIR will be revised as appropriate and presented to the City Planning Commission for certification. No permits may be issued before the Final EIR is certified.

The Downtown Plan was adopted and proposed amendments to the City Planning Code to implement it (Permanent Controls) were approved by the City Planning Commission on November 29, 1984 (Resolution No. 10165). The proposed amendments were acted on by the Board of Supervisors and signed by the Mayor, in September 1985, and became effective October 17, 1985.

The Office Growth Limitation Ordinance (Ordinance No. 414-85 approved September 10, 1985 by the Board of Supervisors, signed by the Mayor September 17, 1985, and effective October 17, 1985) limits growth in the form of major office developments (over 50,000 sq. ft.) in San Francisco to a total of 2.85 million sq. ft. over a period of three years (an average of 950,000 sq. ft. per year). This includes development citywide and encompasses development by the Redevelopment Agency, the Port of San Francisco and State and Federal agencies. In accord with the ordinance, the project would be subject to review and approval under Planning Code Section 321, Office Approval and Limits.

Under Planning Code Section 309, Permit Review in C-3 Districts, the project would require exceptions to separation of towers (allowable under Section 132.1(c)2A and B), and bulk requirements in the upper tower (allowable under Section 272(a).)

The City Planning Commission would hold a public hearing to consider the project application under Sections 309 and 321, including requests for exceptions under Section 309(e), and would adopt a motion approving, approving with conditions, or disapproving the project./5/ If the project is approved by the City Planning Commission, the project sponsor must obtain demolition, building, and related permits from the Central Permit Bureau of the Department of Public Works. An application for a Site Permit for the project (#08409150-S) was filed with the Central Permit Bureau on August 20, 1984.

NOTES - Project Description

/1/ Streets in the South of Market area run generally northeast-southwest and northwest-southeast. For ease of reading, northeast-southwest streets, such as Mission St., are referred to as east-west, and northwest-southeast streets, such as First St., are referred to as north-south. Thus, Fremont Center is east of the site on Mission St.

/2/ Richard Leicher, Dinwiddie Construction Co., transmittal, March 12, 1986.

/3/ Richard Leicher, Dinwiddie Construction Co., telephone conversation, March 7, 1986.

/4/ Courtney Seeple, Project Manager, Bredero-Northern, telephone conversation, March 18, 1986.

/5/ The Downtown Plan (Section 309(h)) requires a public hearing before the City Planning Commission for all projects exceeding 50,000 sq. ft. of net new area.

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

LAND USE

The project site is on the south side of Mission St. between First and Second Sts. at Shaw Alley. Minna St. abuts the rear (south) boundary of the site. About one-half block east of the site across First St. is the Transbay Terminal which occupies the entire block east of the site block. Its passenger unloading and open area fronts the south side of Mission St. between Fremont and First Sts. The 100 First St. development, under construction, adjoins the site on the east. Golden Gate University faces the project site across Mission St. A five-story building with office and downtown support uses is west of the site across Shaw Alley.

The project area is characterized by a mix of low-rise and high-rise commercial buildings. The area to the east of First St. includes more recent development of generally higher scale and greater density (such as Fremont Center) than the area west of First St. Highrise buildings approved, under construction or recently constructed in the project area include the 71 Stevenson St. building (Stevenson Place) nearing completion, and 49 Stevenson St., approved for construction both in the block north of the project site. On the block northeast of the project block, Central Plaza (455 Market) is under construction. One block northwest of the project block, two buildings are under construction: New Montgomery Place and 90 New Montgomery St. Several proposals for other high-rise buildings in the area are under formal environmental review by the Department of City Planning: One Second St., 526 Mission, Second and Mission Sts., and 222 Second St. The Yerba Buena Center office building (a Redevelopment Agency project), is also proposed in the project area. Environmental impact reports for 524 Howard St. and 299 Second St. have been certified (84.199E and 83.311E respectively, both certified April 17, 1986; the 299 Second St. project was disapproved and the 524 Howard St. project withdrew from the first round of project review under Sections 321 and 309 of the City Planning Code).

The site is occupied by two, low-rise commercial buildings: a three-story building at 531 Mission St. and a four-story building at 535 Mission St. (the Goodyear Building), see Figures 9 to 12, pp. 33 to 36.

Both structures on the site are built to lot lines, with a single entry area to both. Uses on the site include a total of about 82,500 sq. ft. of retail, light manufacturing, and downtown support (toy store, business equipment sales and repair firms, a consulting business and storage). Businesses at the site employ about 71 persons.

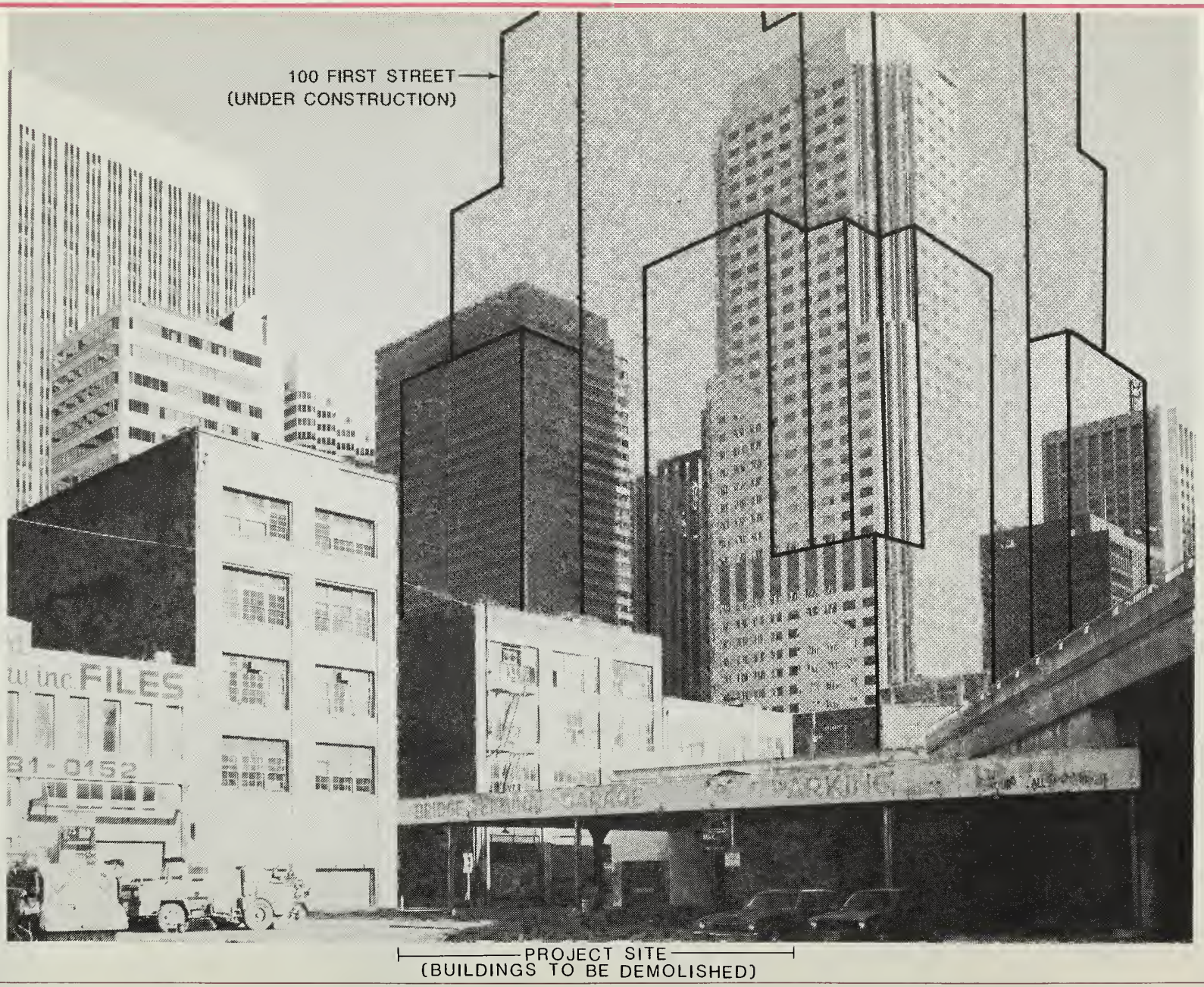
Similar retail, office and service uses occupy other older buildings in the vicinity (see Figure 13, p. 37). East of the site is a parking garage part of the 100 First St. site. West of the site, across Shaw Alley, uses include a copy business, a restaurant, and office furniture sales firms. Uses along the north side of Mission St. include a drugstore, a restaurant, a typewriter store, and several offices in buildings between two and five stories in height; Golden Gate University, at 536 Mission St. with related school uses in adjacent buildings; a parking lot with a film kiosk; and a Pacific Bell office building. In the interior of that block, the 71 Stevenson St. office/retail building (Stevenson Place) is nearing completion; an 18-story office/retail building has been approved at 49 Stevenson St. At the northeast corner of the First and Mission Sts. intersection, the five-story Terminal Plaza building at 440-454 Mission St., houses a restaurant, photo shop and boutique on its ground floor, and offices on its upper floors. The recently completed Fremont Center (also known as Five Fremont Center and located at 50 Fremont St.) office building is just east of the Terminal Plaza building.

The South of Market area, east of Third St., has become increasingly a location for office development. There are many low-rise structures in this Use District which is zoned for high-rise development. During the 1970s some buildings in the vicinity were converted to office use and others replaced by high-rise towers, including the Pacific Gas and Electric building (77 Beale St.), the Bechtel building (50 Beale St.), the Tishman building (525 Market St.), the Chevron towers (575 Market St.), and the Metropolitan Life Insurance building (425 Market St.).

The California Department of Transportation (CalTrans) has proposed to redesign the existing passenger loading and open areas immediately north of the Transbay Terminal. Changes would include replacement of the existing landscaped open area and taxi and bus

FIGURE 9: 535 MISSION
VIEW OF SITE FROM NORTH SIDE OF MISSION STREET

SOURCE: ESA

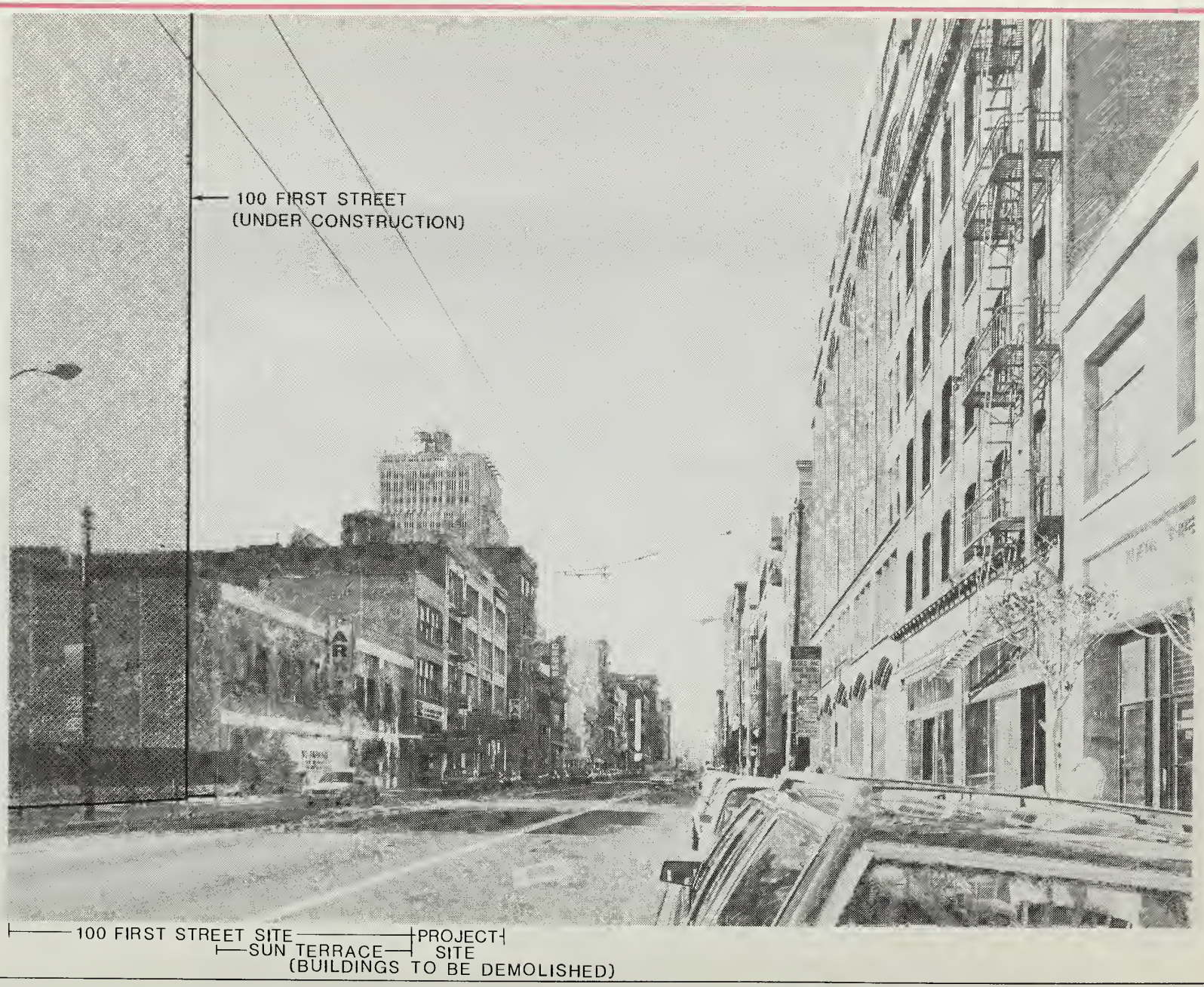


SOURCE: ESA

FIGURE 10: 535 MISSION
VIEW OF SITE
NORTHEAST FROM MINNA STREET

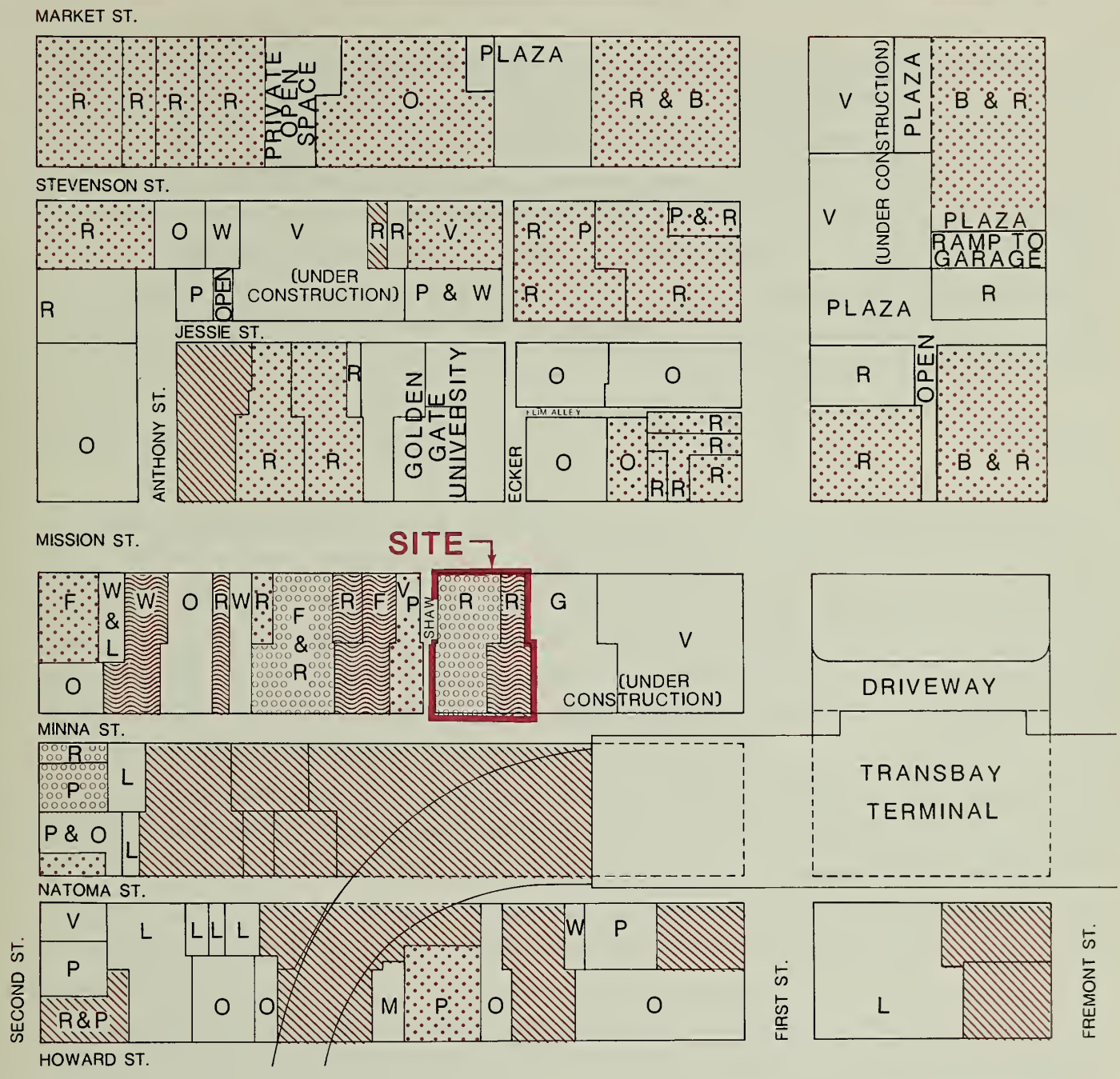
FIGURE 11: 535 MISSION
VIEW OF SITE
SOUTHEAST ON MISSION STREET

SOURCE: ESA



SOURCE: ESA

FIGURE 12: 535 MISSION
VIEW OF SITE
SOUTHWEST ON MISSION STREET



LEGEND:

GROUND-FLOOR USE

- O OFFICE
- W WHOLESALE
- R RETAIL/RESTAURANT
- P PRINTING/PHOTOGRAPHY
- F FURNITURE STORE
- B BANK
- L LIGHT INDUSTRIAL
- M MEDICAL CLINIC
- PARKING LOT
- V VACANT
- G SERVICE GARAGE

UPPER-FLOOR USE

- OFFICE ABOVE
- WHOLESALE ABOVE
- VACANT ABOVE

0 100 FEET

SOURCE: ESA

FIGURE 13: 535 MISSION LAND USE

driveways by three east-west bus driveways sunk below street level, directly under new a elevated north-south pedestrian walkway. The sidewalk along Mission St. would be widened, and landscaped, and the elevated walkway is intended to connect with a pedestrian bridge across Mission St. from Fremont Center. The design plans as established by CalTrans in cooperation with the San Francisco Bay Area Transportation Terminal Authority are suspended pending reconciliation between CalTrans planned transfer of Peninsula commuter rail service from Fourth St. to the Transbay Terminal with the Transbay Terminal's current function as a bus terminal. Final design decisions will be made by Caltrans, in informal consultation with the City of San Francisco./1/

ZONING

The project site falls within the area of the Downtown Plan. (The EIR prepared for the Downtown Plan was certified on October 18, 1984. The Downtown Plan and related amendments to the San Francisco Master Plan were approved and adopted by the City Planning Commission on November 29, 1984. The Board of Supervisors approved the Downtown Plan and implementing ordinances on September 10, 1985. The ordinances were signed by the Mayor on September 17, 1985, and took effect October 17, 1985.)

As noted on p. 29, the Office Growth Limitation Ordinance limits growth of major office development (over 50,000 sq. ft.) to a total of 2.85 million sq. ft. over a three-year period (an average of 950,000 sq. ft. per year). This includes development citywide and encompasses development by the Redevelopment Agency, the Port of San Francisco and State and Federal agencies. Section 321 of the Planning Code implements this ordinance.

The site is in the C-3-0 (Downtown Office) use district (see Figure 14, p. 40). Office and retail are primary uses in this zoning district. Development is permitted with a basic Floor Area Ratio (FAR) of 9:1. Development greater than the basic 9:1 FAR, up to a maximum of 18:1 FAR, is allowable through transfer of development rights (TDR) from sites, in the same zoning district, that include architecturally significant buildings with unused potential floor area. All unused area applicable to the FAR of the preservation site could be transferred to a development lot in the same C-3 zoning district, subject to setback, sunlight access, separation between towers and any other limitations pursuant to Section 309, Permit Review in the C-3 Districts.

Zoning in the site vicinity includes P (Public Use) southeast and east of the site (the Transbay Terminal and related areas) and C-3-O on the north. Between the P districts is the C-3-O (SD) (Downtown Office Special District). This special district is identified in the Downtown Plan and Planning Code as an area for growth redirected from North of Market and for receiver sites for transferred development rights.

As noted earlier in this section, low-rise buildings are present in the immediate project vicinity, which is zoned for downtown office use and abuts the C-3-O (SD) (Special Development) district. The Downtown Plan and the Planning Code identify the project site and C-3-O (SD) areas as appropriate for growth redirected from the north of Market, as indicated by the height and bulk designations for these areas.

The site is in a 550-S Height and Bulk district, in which the allowable height is 550 ft. (see Figure 14, p. 40). In the S Bulk District, the maximum length and maximum diagonal dimensions of the lower tower are 160 ft. and 190 ft., respectively. The maximum average floor size is 17,000 sq. ft. the maximum floor size is 20,000 sq. ft. For the upper tower the bulk controls are: a maximum length of 130 ft.; a maximum average diagonal measure of 160 ft. a maximum average floor size of 12,000 sq. ft.; and a maximum floor size of 17,000 sq. ft. Allowable exceptions to these bulk maximums are provided in Section 272, subject to approval under Section 309. Ten percent of permitted building height is allowed above the height limit upon further reduction in the volume of the upper portion of the tower. Thus, in the 550-S District, the maximum allowable height is 605 ft.

Off-street parking is not required for commercial uses in the C-3-O district, and long-term parking is discouraged. According to Section 204.5(c) of the Planning Code up to seven percent of the gross floor area of a building may be devoted to parking as an accessory use when no parking is required. In C-3 districts, off-street loading and service vehicle spaces are required as follows: 0.1 spaces per 10,000 sq. ft. of office (to closest whole number); no spaces are required for less than 10,000 gross sq. ft. of retail (Planning Code, Section 152.5, Table 5.5).

One block south of the site is the south of Market (SOM) Plan Area. The South of Market Plan is proposed as an area plan within the City's Master Plan. Goals of this area plan include protecting the existing economic, social and cultural diversity; preserving

LEGEND:

C-3-0 DOWNTOWN OFFICE DISTRICT

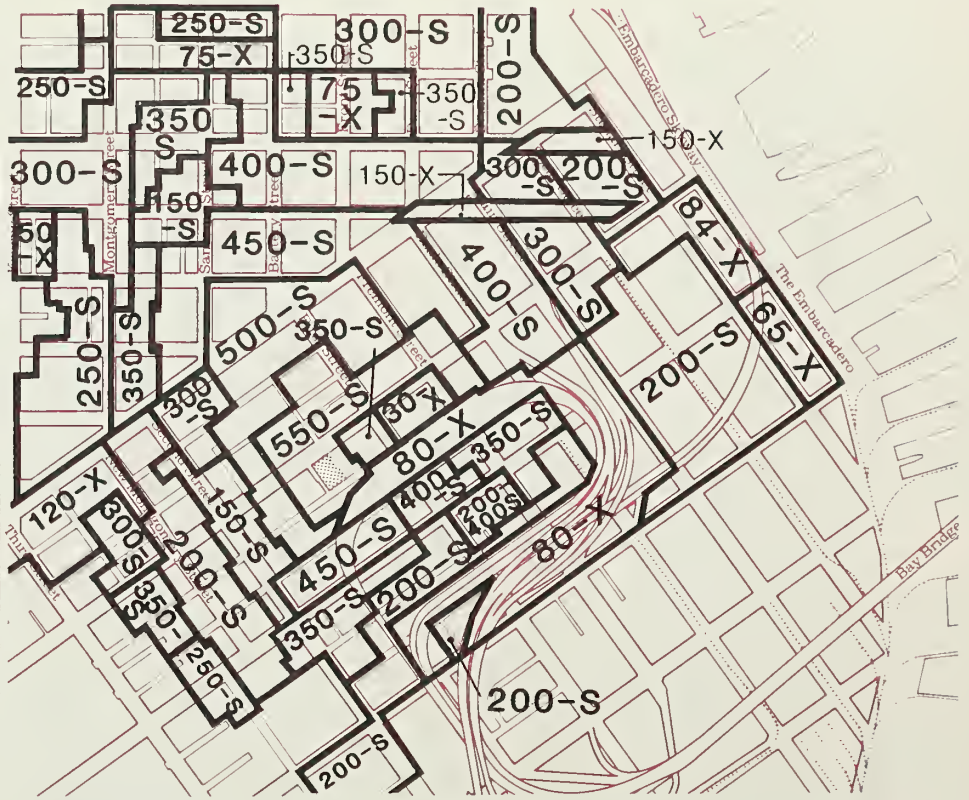
C-3-0 (SD) DOWNTOWN OFFICE SPECIAL DISTRICT

C-3-S DOWNTOWN SUPPORT DISTRICT

P PUBLIC USE DISTRICT

SITE

535 MISSION
PLANNING CODE
USE DISTRICTS



LEGEND:

NUMBERS INDICATE MAXIMUM BUILDING HEIGHT. IN 'S' BULK DISTRICTS, HEIGHT MAY BE INCREASED BY UP TO 10%.

LETTERS INDICATE BULK DISTRICTS.

S - MANDATORY VOLUME REDUCTION AT UPPER FLOORS FLOORS (SEE TEXT FOR FULL DISCUSSION)

X - BULK LIMITS NOT APPLICABLE

SITE

FIGURE 14: 535 MISSION
PLANNING CODE
HEIGHT AND BULK DISTRICTS

SOURCE: SAN FRANCISCO CITY PLANNING CODE

existing housing and encouraging development of new affordable housing; protecting and facilitating the expansion of industrial artisan, service and neighborhood serving retail activities; and preserving existing amenities and improving the neighborhood livability.

NOTE - Zoning

/1/ Gary Cherrier, P.E., CalTrans, San Francisco, telephone conversation, June 27, 1984.

B. URBAN DESIGN

DESIGN

The two buildings on the site are low-rise, commercial brick structures, typical of older South of Market development. The north side of Mission St. facing the project block, the project block and blocks to the south, all contain relatively intact examples of post-fire industrial-style reconstruction development (see Figures 9 to 12, pp. 33 to 36, for photographs of the site buildings).

The project site is occupied by two, three- and four-story structures. The 531 Mission St. building is a rectangular brick facade structure with a renovated ground floor, projecting decorated lower window sills and a patch where a corner appears to have been removed. It was not rated by the Department of City Planning (DCP) 1976 Architectural survey, or by the Foundation for San Francisco's Architectural Heritage (Heritage), and is not designated as a significant or contributory building in the Downtown Plan. The Downtown Plan categorizes historically and architecturally significant buildings in the C-3 districts into either Category I or II (significant buildings) or Category III or IV (contributory buildings) and establishes four conservation districts. It is the intent of the Downtown Plan that those buildings categorized I, II, III or IV be protected. The 535 Mission St. (Goodyear) building (at 535-539 Mission St.) was not rated by DCP and is not designated as a significant or contributory building in the Downtown Plan. The building is rated C by Heritage (ratings are from the highest A to C). Heritage defines C-rated buildings to be of contextual importance and states that these buildings as distinguished by their scale, materials, compositional treatment, cornice and other features, provide the setting for more important buildings and add visual character and richness to the downtown area. The 535 Mission St. building is described by Heritage as originally designed to be "a reinforced concrete warehouse and sales building, but built in brick with wood posts."

Designed by MacDonald and Kahn and built in 1918, it is "a two-part vertical block with restrained Renaissance/Baroque ornamentation."/1/

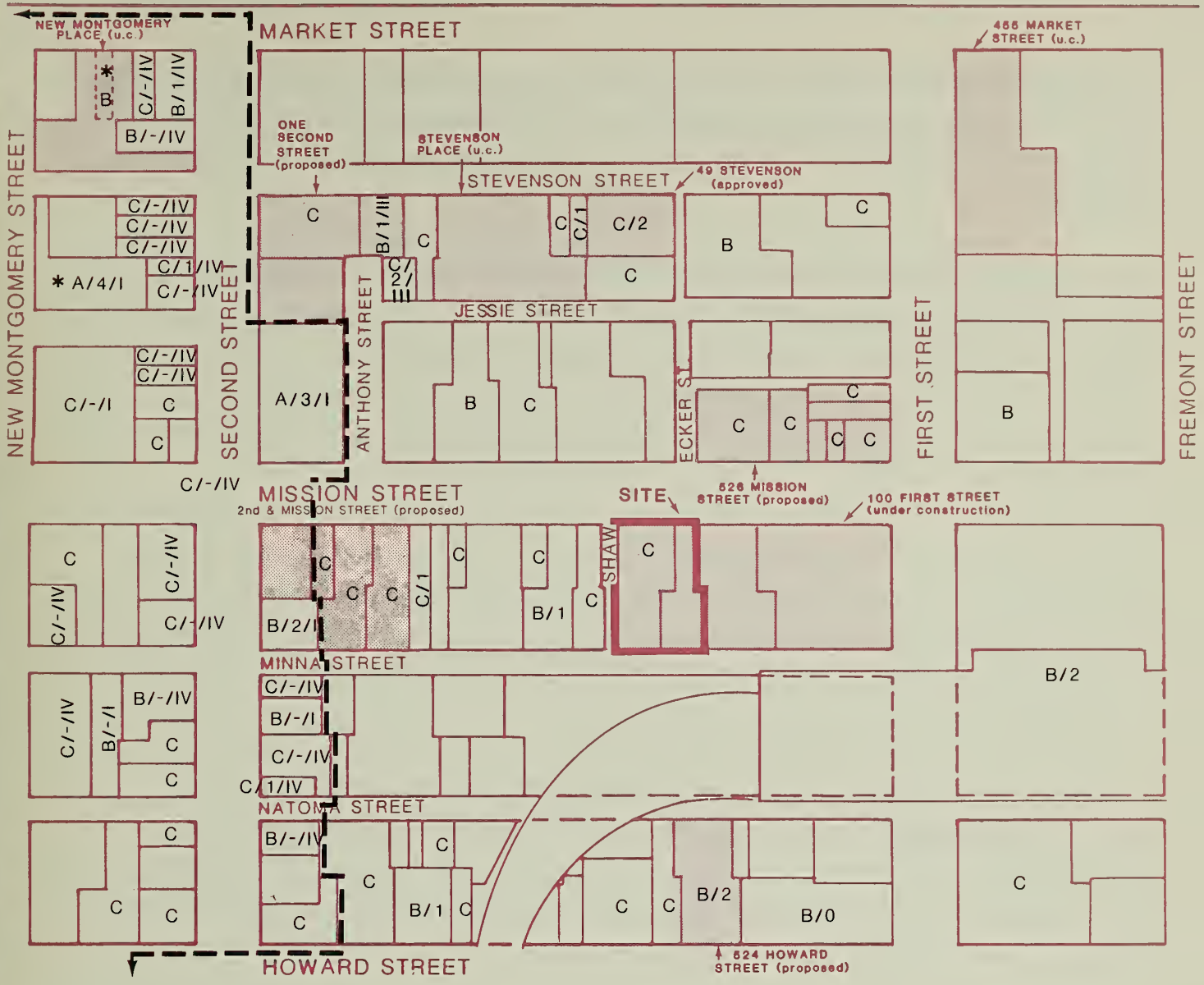
The project is outside the boundaries of the Downtown Plan New Montgomery-Second Conservation District which includes the buildings facing Second St. on the western portion of the project block, about one-half block from the site. Two of the buildings on the project block (121 and 141 Second St.) in the Conservation District are designated as Category I, of highest architectural and environmental importance, in the Downtown Plan; four buildings (135, 149, 163 and 165 Second St.) are Category IV structures, of good architectural design or excellent or very good environmental importance. The boundaries of the District are roughly Second, Howard, New Montgomery, and Market Sts. (For a description of the surveys, Downtown Plan designations and rating systems, see Appendix D, p. A-32.)

There are two City landmarks in the project vicinity: 619 Market St. and the Palace Hotel and its Garden Court at 633 Market St. Figure 15, p. 43, identifies City landmarks and other buildings in the project area included in 1) the Department of City Planning 1976 Architectural Inventory, 2) the Heritage Survey, and 3) the Downtown Plan.

The buildings on the site are of the same scale as the larger grouping of older, two- to five-story buildings along both sides of Mission St. west of First St. West of the site on the project block, one of the buildings fronting Mission St. is rated "B" by Heritage and seven are rated "C". The "B" rated building, 549-551 Mission St., was given a summary rating of "1" by DCP. (The 1976 Inventory ratings range from 1, the lowest, to 5, the highest.)

On the north side of Mission St., facing the project block, one building is rated "B" and six are rated "C" by Heritage. The "B" rated building is 562-572 Mission St. The Pacific Telephone building on the northeast corner of Second and Mission Sts. is rated "A" by Heritage. It is rated "3" by DCP, and is included in the New Montgomery-Second Conservation District. The California Farmer building, at 83 Stevenson St., is a Category III building and is rated "B" by Heritage. It was given a summary rating of "1" in the DCP survey.

The five-story Terminal Plaza building at 440-454 Mission St., northeast across First and Mission Sts. is rated "B" by Heritage. The Transbay Terminal, built in 1939, and also rated



DOWNTOWN PLAN NEW MONTGOMERY - SECOND ST. CONSERVATION DISTRICT

KEY TO RATINGS

B/2/III	HERITAGE/DCP/ DOWNTOWN PLAN
A-C	HERITAGE RATING (1979 AND 1982, D C-3 DISTRICTS ONLY)
0-2	DCP RATING (1976, CITYWIDE)
I-IV	DOWNTOWN PLAN (1984, C-3 DISTRICTS ONLY)
*	CITY LANDMARK
▒	DEVELOPMENT SITES UNDER CONSTRUCTION, APPROVED, OR PROPOSED

0 200 FEET

SOURCE: ESA

FIGURE 15: 535 MISSION ARCHITECTURAL RESOURCES IN THE PROJECT VICINITY

"B" by Heritage and "2" by DCP, is described by Heritage as an 870-ft.-long flat slab with a 230-ft.-long central pavilion. In composition, this building is an enframed pavilion with end bays, wings, and a base. It is clad in granite and includes seven large, two-story windows.

The project block bounded by Mission, First, Howard and Second Sts., contains a variety of small- and medium-scaled buildings and the 100 First St. building currently under construction. The 100 First St. building will change the character of the immediate vicinity by replacing older, smaller buildings with a highrise tower. The design and proportions of buildings in the greater area consist generally of Renaissance/Baroque, Gothic and Modern architectural styles./1/ Almost all to lot lines, they provide continuous street-wall definition. The pattern of building heights and styles is typical of the area and creates much of its character. Owing to the variety of architectural styles in the site vicinity, exterior building textures and door and window treatments vary. However, the buildings contain a number of common architectural elements, such as one or more cornices, industrial sash glazing, inset framed windows and distinctive bases, which provide the buildings with pedestrian scale.

High-rise towers constructed in the area in the past 25 years tend to stand out as contrasting structures among older buildings, which generally share a greater harmony of scale and mass. The north side of Mission St., between First and Second Sts., presents a grouping of five- to eight-story structures of similar mass. The view on Mission St. east of First St. is of irregularly spaced high-rise buildings.

Building heights in the project vicinity range from one to 42 stories. Large high-rise office structures are located east of the project site along Mission St. within about four blocks and on Market St. about one block to the north. They include the 22- and 39-story Chevron and 38-story Tishman Towers at Market St., the 42-story Fremont Center to the northeast, the 23-story Bechtel building at 50 Beale St., and the 33-story Pacific Gateway building on Mission St. between Main and Beale Sts. New development within two blocks to the northwest includes the 18-story New Montgomery Place and the 15-story 90 New Montgomery St. buildings. The area south and west of the site contains low- to moderate-scale structures typical of the South of Market area. Older buildings generally have ground-floor retail uses. The project block is situated in an area where lower-scale development of older South-of-Market meets high-rise development of the northern part of that district. It is visually a transitional area. The Yerba Buena Redevelopment area

is about two blocks west of the project block beginning at about Hawthorne St. A number of new developments have been completed, and others are planned on paved lots being used in the interim as surface parking.

The passenger unloading and open area in front of the Transbay Terminal is one of relatively few large open areas in the vicinity. It consists of small, hedged, landscaped areas between driveways designated for bus and taxi loading between the Terminal and Mission St. The horizontal mass of the Terminal building dominates the open and passenger unloading areas. The space serves primarily as a corridor of pedestrian and vehicular movement between the Terminal building and the surrounding city.

VISUAL QUALITY

Views north and east from the site are dominated by newer, high-rise buildings, such as the Chevron Towers, the Tishman building, Fremont Center and Pacific Gateway. Views west from the site are characterized by three- to five-story retail and office buildings. Long-range views of San Francisco Bay or other visual landmarks are not available from existing buildings on the site. The low-rise buildings on the site are not visible from Twin Peaks on the west because of intervening taller structures. Site buildings are partly visible from long-range viewpoints to the south, such as Potrero Hill. The existing low-rise structures on-site are generally not visible from the north or locations beyond buildings and streets in the immediate project vicinity.

NOTE - Urban Design

/1/ Foundation for San Francisco's Architectural Heritage, Splendid Survivors, San Francisco, California Living Books, San Francisco Examiner, 1979.

C. SHADOW AND WIND

SHADOW

Existing buildings on the site cast shadows on streets and sidewalks in the project vicinity, on the Golden Gate University entry plaza and on the garage rooftop adjacent to the site which is being developed as a sun terrace as part of the 100 First St. development. Portions of First and Mission Sts. within one block of the project site are shaded at different times of day and seasons of the year. Existing and project shadow patterns for

various times of the day and year are discussed in detail in Chapter IV., Impacts C, p. 69. Section 147 of the Planning Code states that any new development in the C-3 districts should be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site in question, to reduce substantial shadow impacts on public plazas and publicly accessible spaces. Factors to be taken into account in the determination of shadow impacts include: the amount of open area shadowed, the duration of the shadow, and the importance of sunlight to the utility of the type of open space being shadowed.

WIND

U.S. Weather Bureau data show that westerly (i.e. from the west) to northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco./1/ Of the 16 primary wind directions measured at the Weather Bureau station (at a height of 132 ft.), four directions comprise the greatest frequency of occurrence as well as the majority of strong wind occurrences. These are northwest, west-northwest, west and west-southwest, with occurrence rates of about 10%, 14%, 35%, and 2%, respectively, of the time between the hours of 6:00 a.m. to 8:00 p.m throughout the year. The remaining 12 wind directions comprise the remaining 36% frequency of annual occurrence with lower wind speeds. Calm conditions occur two percent of the time.

Average wind speeds are highest during summer and lowest during winter months. However, strongest peak winds occur in winter, when speeds of 47 mph have been recorded./2/ The highest average wind speeds are in the mid-afternoon, and the lowest are in the early morning.

Between the hours of 7:00 a.m. and 6:00 p.m. on an annual basis, wind speeds measured at the Weather Bureau station exceeded 21, 25, 21, and 18 miles per hour (mph) 10% of the time for northwest, west-northwest, west, and west-southwest winds, respectively, while the 12 remaining wind directions exceeded 15 mph 10% of the time.

Pedestrian Comfort and Wind Criteria

Wind conditions partly determine pedestrian comfort on sidewalks and in other public areas. In downtown areas, high-rise buildings can redirect wind flows around buildings and divert winds downward to street level; each can result in increased wind speed and turbulence at street level.

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four mph have no noticeable effect on pedestrian comfort. With winds from four to eight mph, wind is felt on the face. Winds from 8 to 13 mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. For winds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 mph to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over./3/

In order to provide a comfortable wind environment for people in the Downtown area, Section 148 of the Planning Code establishes an equivalent (includes the effects of turbulence) windspeed (as defined in the code) of seven and 11 mph as comfort criteria and 26 mph as a wind hazard criterion. Section 148 sets comfort levels of seven mph equivalent wind speed for public seating areas and 11 mph equivalent wind speed for areas of substantial pedestrian use. New buildings and additions to buildings may not cause ground level winds that would exceed these levels more than ten percent of the time year round between 7 a.m. and 6 p.m. year round./4/ If existing wind conditions exceed the comfort level, new buildings and additions shall be designed to reduce ambient wind speeds to meet the requirements. A building may qualify for an exception to the standard that would allow it to add to the amount of time the comfort level is exceeded by the least practical amount if 1) it can be shown that the building or addition cannot be shaped and other wind baffling measures cannot be adopted to meet the foregoing requirements without creating an unattractive and ungainly building form and without unduly restricting development of the building site in question, and 2) it is concluded that, because of the limited amount by which the comfort level is exceeded, the addition is insubstantial. No building or addition that would cause wind speeds to exceed the 26 mph hazard level for more than a single hour of any year would be permitted.

Existing and project-generated wind conditions are discussed in detail in Chapter IV, Environmental Impact, p. 95 and Appendix B, p. A-28.

NOTES - Shadow and Wind

/1/ The U.S. Weather bureau data used in this analysis were originally gathered at the weather station atop the old Federal building at 50 United Nations Plaza during the years 1945-50. Data were taken hourly, annually for 16 wind directions. The data base, comprising of 32,795 hourly observations, is of sufficient length to provide a reliable estimate of future climatic conditions in San Francisco.

/2/ E. Jan Null, Climate of San Francisco, NOAA Technical Memorandum, NWS WR-126, February 1978.

/3/ Lawson, T.V., and A.D. Penwarden, 1976, "The Effects of Wind on People in the Vicinity of Buildings," Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U.K., 605-622.

/4/ Section 148 of the Planning Code specifies the hours of 7:00 a.m. to 6:00 p.m. The available weather data that include that interval cover the hours of 6:00 a.m. to 8:00 p.m. Thus, observation from two additional evening hours and one additional morning hour are included in these data. Because, in general, winds are stronger in the afternoon and evening than in the morning, this approximation is conservative - it is likely to overestimate the existing and projected wind speeds.

D. CULTURAL RESOURCES

Archival research and a site inspection were done for the project. A study entitled, Cultural Resource Evaluation of Five South of Market Parcels, San Francisco California, April 1985, was prepared by an independent consultant, and is on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St./1/ The study is summarized below.

There is no evicence that prehistoric archaeological remains exist at the project site or in its vicinity. The closest known aboriginal site is about one-half mile southwest of the Mission and First Sts. intersection.

The earliest recorded history in the vicinity of this site dates from the Gold Rush Period (1849-1857). The South of Market area remained in a natural state until the Gold Rush. By the end of 1849, the project area began to fill with tents and shacks of immigrants. At that time the area became known as "Happy Valley". Numerous small foundries sprang up in Happy Valley in 1850 and 1851; these foundries were part of San Francisco's first industrial and shipbuilding district. The 1852 U.S. Coast Survey Chart shows two structures within the confines of the project site. By 1855, the parcels on the project site were covered, developed primarily with commercial and light industrial uses. The project area was also a working-class residential district. It is probable that some of the earliest structures built South of Market were on or near the site.

Three other periods of activity on the site identified in the study were: the City Building Period (1858-1886); the Late Nineteenth Century Period (1887-1906); and the Twentieth Century Period (1906-present). The commercial and light industrial character of the

project area remained unchanged through the end of the nineteenth century and well into the twentieth. It is almost certain that cultural remains from these three periods, as well as from the Gold Rush Period, exist at the project site. However, discovery of a ship would be unlikely since the site was situated in a sheltered hollow on the original shoreline of the Bay.

In about 1918, the project site was developed with the two existing buildings (containing retail, office and light industrial uses); these buildings would be removed to make way for the proposed project.

The site condition at the time of the Gold Rush consisted of sand dunes. Since that time, it is estimated that a minimum of seven ft. of fill was placed in and around the site to conform to the official City grade scheme, and create the present nearly level site. Because the area was filled rather than cut, it is possible that any remains would be reasonably intact and of potential significance. Artifacts of consequence from this era typically found at similar San Francisco sites include architectural remnants, trash pits and privies from the Gold Rush era. Such discoveries have served to expand the historic record of the people and events of that era. Numerous Gold Rush artifacts were discovered in spring 1986 during excavation for the adjacent 100 First St. development. Artifacts include remains of what is thought was once a miner's shack.

NOTE - Cultural Resources

/1/ Allen Pastron, Archeo-Tec, April 1985, "Cultural Evaluation of Five South of Market Parcels, San Francisco, California."

E. TRANSPORTATION

The site is served by local streets and by portions of the regional freeway system (see Figure 1, p. 17). Access to the freeway connecting with the East Bay via the Bay Bridge is provided by ramps at First and Harrison Sts. (about 2,100 ft. south of the site) and at Mission and Beale Sts. (about 1,000 ft. east of the site). Access to the freeway connecting with the Peninsula and the San Francisco International Airport is provided by ramps at Mission and Beale Sts. and Harrison and Fourth Sts. (about one-half mile southwest of the site). Access from the freeway system to the project site is provided by off-ramps at Fremont and Howard Sts. (about 2,200 ft. southeast of the site) and at Mission and Main Sts. (about 2,000 ft. east of the site).

The site is within the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master Plan./1/ A Plan goal is to reduce the number of private commuter vehicles and excess automobile traffic in the Downtown Core; the Plan discourages the addition of new long-term parking spaces in and around downtown.

In the vicinity of the project site, Mission, First, Fremont, Market and Howard Sts. are designated as Transit Preferential Streets, on which priority is given to transit vehicles over autos during commute and business hours on weekdays./1/ Howard and Folsom Sts. are designated as Primary Vehicular Streets, which the Master Plan defines as "major routes for automobile and truck movements into and out of the Downtown area." Minna St. is designated a Pedestrian/Service Street in the Master Plan and Downtown Plan; the Master Plan states that such streets, "because of service needs, cannot be for exclusive pedestrian use . . . but through design can be made into pleasant pedestrian spaces." Mission St. is two-way and carries four lanes of traffic; the outer lanes are exclusive transit (diamond) lanes, restricted to transit vehicles and autos making right turns, between 7 a.m. and 6 p.m. First St. is one-way southbound carrying four lanes of traffic; the east lane is a diamond lane and is used as primary transit access to the Transbay Transit Terminal. The diamond lane currently operates from Market St. to the Transbay Transit Terminal; however, it has been approved for extension to Howard St./2/

The site is served by San Francisco Municipal Railway (Muni) electric trolley and motor coach lines, providing radial service to and from the downtown area. Muni bus lines operate on Mission and First Sts. near the project site. The closest Muni bus stops to the project site are on Mission St. in front of and across the street from the Transbay Terminal, serving the 13-Guerrero, the 14-Mission and the 14X - Mission Express. Muni Metro light-rail vehicle lines are accessible via the Montgomery St. Station located two blocks northwest of the project site on Market St. Transit routes in the project vicinity are shown on Figure 28, p. 99.

Market St. is located one block north of the site; it is designated a Transit Thoroughfare in the Market Street Planning Project Final Report (November 1985). In August 1985, Muni began a nine-month trial operation of four-lane service on Market St. between the Financial District and Civic Center; this program will continue indefinitely and has improved surface transit along Market Street./2/ Improvements along Market St. in the

vicinity of the project include relocated bus stops to conform with providing four transit lanes on Market St.

Regional transit service to the site is provided to and from the East Bay by BART at the Montgomery St. Station on Market St., and by AC Transit motor coaches at the Transbay Terminal, about 500 ft. east from the site.

Service to the Peninsula is provided by Caltrains from the Caltrain Depot at Fourth and Townsend Sts.; by the San Mateo County Transit District (Samtrans) from bus routes and stops along Mission St. (the closest to the site is in front of the Transbay Terminal); and by BART, which provides transfers to Samtrans routes at the Daly City BART Station. In addition, independently owned and operated jitneys provide service along the entire length of Mission St. (from The Embarcadero to Daly City) during a.m. and p.m. commute hours.

The Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) provides a.m. and p.m. peak-period bus service to Marin and Sonoma Counties from boarding stops along Howard St., at the Transbay Terminal, and along Sansome St. Discharge stops are located along Folsom St., at the Transbay Terminal, and along Battery St. Golden Gate Transit provides ferry service to terminals in Larkspur and Sausalito from the Ferry building, about 2,500 ft. east of the site.

Golden Gate Transit also operates a vanpool and club (subscription) bus program to areas not served by fixed routes. The RIDES carpool program, operating as a nonprofit, publicly funded corporation, provides consulting and matching services to help establish Bay Area carpools and vanpools. There are about 1,240 combined carpools and vanpools on the Golden Gate Bridge during the a.m. peak hour, carrying about 4,500 people daily (average occupancy of 3.6 persons per ridesharing vehicle./3/ The Bay Bridge has about 2,800 carpools during the a.m. peak hour; carpools from/to the East Bay carry about 10,900 people daily (an average occupancy of 3.9 persons per carpool vehicle)./4/

Pedestrian activity around the site during the peak periods of 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. is directed primarily to and from transit and parking facilities. Peak afternoon pedestrian flows are generally more intense than those of the morning period. Noon-hour flows are similar to the afternoon flows and are directed primarily to restaurants and retail stores within the downtown area.

Sidewalk widths on Mission Sts. in front of the project site and on First St. near the project site are restricted by trash cans, newsstands, fire hydrants and poles. The effective clear width of the Mission St. sidewalk is 9.5 ft., about 63% of the full width of 15 ft. The effective clear width of the First St. sidewalk is 9.75 ft., about 65% of the full width of 15 ft.

The Mission St. sidewalk in front of the project site currently operates in unimpeded conditions during both the noon and p.m. peak hours. The First St. sidewalk operates in unimpeded conditions during the noon hour and impeded conditions during the p.m. peak hour. The crosswalk across Mission St. at First St. closest to the site currently operates in impeded conditions during both the noon and p.m. peak hour. The crosswalk crossing First St. at Mission St. operates in unimpeded conditions during the noon hour and impeded conditions during the p.m. peak hour. Pedestrian volumes on Minna St. and Shaw Alley are low during both the noon and p.m. peak hour. Minna St. is mostly used by pedestrians directed to and from the parking facility along that street and by some people heading toward the Transbay Terminal./5/

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District.

NOTES - Transportation

/1/ San Francisco Department of City Planning, January 1983, Transportation, An Element of the Master Plan.

/2/ K. L. Wong, Muni Planning Division, telephone conversation, May 6, 1986.

/3/ Maria Thayer, Golden Gate Bridge, Highway and Transportation District, telephone conversation, December 2, 1985.

/4/ Traffic Survey Services MA-60, Bay Bridge, Metropolitan Transportation Commission, Spring 1985.

/5/ Based on observations at the project site conducted by Environmental Science Associates on Monday and Thursday, November 14 and 17, 1983, during the evening peak period (4 pm to 6 pm).

F. AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentrations of six air pollutants: ozone (O_3), carbon monoxide (CO), total suspended particulates (TSP), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). On the basis of the monitoring data, the Bay Area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A four-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about two miles south at 900 23rd St.) is shown in Appendix E, p. A-46, together with the corresponding federal and/or state ambient air quality standards. In 1984, there was one violation of the state ozone standard, one violation of the federal and state eight-hour CO standards and five violations of the previous state 24-hour average TSP standard; in 1983, there was one violation of the federal and state one-hour average ozone standards and four violations of the previous state 24-hour average TSP standard; and in 1982 there was one violation of the federal and state eight-hour CO standard and three violations of the state 24-hour average TSP standard./1/

BAAQMD has conducted several CO "hotspot" monitoring programs in the Bay Area, including two in San Francisco. One CO monitoring program was conducted during the winter of 1979-80 at the intersection of Washington and Battery Sts. about 0.5 miles north of the site./2/ The high eight-hour average concentration was 10.1 ppm, which violates the 9-ppm state and federal standards by 1.1 ppm. The high one-hour average concentration of 15 ppm does not violate the 20-ppm state standard or the 35-ppm federal standard. Another CO monitoring program was conducted during the winter of 1980-81 at the intersection of Geary and Taylor Sts., about 0.7 miles west of the site, and 100 Harrison St. at Spear, about 0.5 miles east of the site./3/ At Geary and Taylor the observed high eight-hour average concentration was 11.5 ppm, which violates the standards by 2.5 ppm, and the high one-hour concentration was 15 ppm, which does not violate standards. At Harrison St. the observed high eight-hour and one-hour average concentrations were 7.8 ppm and 13 ppm, respectively, which do not violate the standards. These data indicate that locations in San Francisco near streets with high traffic volumes and congested flows may experience violations of the eight-hour CO standard under adverse meteorological conditions. In December 1985, the City monitored CO and counted traffic at the Sixth and Brannan intersection. These data are still being analyzed.

Comparison of these data with those from other BAAQMD monitoring stations indicates that San Francisco's air quality is among the least degraded of all the developed portions of the Bay Area. Three of the four prevailing winds, west, northwest, and west-northwest, blowing off the Pacific Ocean, reduce the potential for San Francisco to receive pollutants from elsewhere in the region.

San Francisco's air quality problems, primarily CO and TSP, are due largely to pollutant emissions from within the City. CO is a non-reactive pollutant and its major source is motor vehicles. CO concentrations are generally highest during periods of peak traffic congestion or adverse meteorology. TSP levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of TSP in San Francisco are demolition and construction activities, and motor vehicle travel over paved roads.

San Francisco contributes to regional air quality problems, primarily ozone, a regional problem in other parts of the Bay Area. Ozone is not emitted directly from sources, but is produced in the atmosphere over time and distance through a complex series of photochemical reactions involving hydrocarbon (HC) and nitrogen oxide (NOx) emissions, which are carried downwind as the photochemical reaction occurs. Ozone standards are violated most often in the Santa Clara, Livermore, and Diablo Valleys, because local topography and meteorological conditions favor the buildup of ozone and its precursors there.

In 1982, emissions from motor vehicles were the source of 86% of the CO, 46% of the HC, 44% of the TSP, and 56% of the NOx emitted in San Francisco, while power plant fuel combustion was the largest single source of sulfur oxides (SOx), about 33% of the total./4/ These percentages are expected to apply reasonably well to current conditions.

In response to the Bay Area's ozone and CO non-attainment designations, the Association of Bay Area Governments (ABAG), BAAQMD, and the Metropolitan Transportation Commission (MTC) prepared and adopted the 1982 Bay Area Air Quality Plan, which establishes pollution control strategies to attain the federal ozone and CO standards by 1987 as required by federal law./5/ These strategies were developed on the basis of detailed subregional emission inventories and projections, and mathematical models of pollutant behavior, and consist of stationary and mobile source emission controls and

transportation improvements. The BAAQMD, MTC, and California Bureau of Automotive Repair (a state agency) have primary responsibility for implementation of these strategies.

NOTES – Air Quality

/1/ State standards for particulate matter changed in 1983 to concentrate on fine particulate matter, which has been demonstrated to have health implications when inhaled. Concentration standards also changed. There is not yet an adopted method for monitoring fine particulate matter. Until the State adopts a method, it is not possible to determine what proportion of TSP in San Francisco would be subject to review against the new standards.

/2/ Association of Bay Area Governments, AQMP Tech Memo 33, "Summary of 1979/80 Hotspot Monitoring Program," Berkeley, California, June 1980.

/3/ Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/81 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

/4/ Bay Area Air Quality Management District (BAAQMD), "Base Year 1982 Emissions Inventory, Summary Report," San Francisco, California, November 1, 1983.

/5/ Association of Bay Area Governments (ABAG), BAAQMD, and MTC, 1982 Bay Area Air Quality Plan, Berkeley, California, December 1982.

IV. ENVIRONMENTAL IMPACTS

An application for environmental evaluation for a development proposal on the site was filed on August 22, 1984. On August 9, 1985, an Initial Study was published and a determination made that an EIR was required. That proposal, by the same project sponsor, would not have been consistent with the Downtown Plan or Planning Code in that it proposed an FAR of 26:1, while the maximum allowable FAR is 18:1. The project was redesigned and a revised Initial Study prepared. On March 21, 1986, based on that Initial Study, the Department of City Planning, Office of Environmental Review determined that an Environmental Impact Report was required. Issues determined as a result of the revised Initial Study to require no further environmental analysis include: Reflected Light and Glare, Housing, Operational Noise, Construction Air Quality, Utilities/Public Services, Biology, Geology/Topography, Water, Energy, and Hazards. Therefore, this document does not discuss these topics (see Appendix A, pp. A-2 to A-27, for the revised Initial Study of March 21, 1986, which supercedes the previous Initial Study).

This tiered EIR has been prepared for the project pursuant to Sections 21093 and 21094 of the California Environmental Quality Act (CEQA). The EIR is tiered from the EIR for the Downtown Plan (EE81.3, Final EIR certified October 18, 1984). The 535 Mission St. EIR analyzes project-specific impacts. It discusses potentially significant effects of the project that were not examined in the Downtown Plan EIR and includes applicable mitigation measures for site-specific effects. The analysis identifies the project portion of the relevant cumulative impacts forecast in the prior EIR.

The Downtown Plan EIR process included development of a complex and sophisticated economic forecast of employment growth, and computerized transportation and air quality models for calculating and predicting cumulative impacts of development in the downtown C-3 districts to the year 2000. Development of the forecast and transportation and air quality models, and presentation of their analyses in the EIR required several years of work. The Downtown Plan EIR, from which this later single-project EIR is tiered, includes about 600 pages of Comments and 400 pages of Responses to those comments. The Downtown Plan Final EIR was certified October 18, 1984.

The Downtown Plan, itself, was approved by the Planning Commission on November 29, 1984, and its implementing ordinances were approved by the Board of Supervisors (Ordinance 414-85 approved September 10, 1985), effective October 17, 1985. The approval process thus took place over about 12 additional months subsequent to the EIR process and included public hearings and testimony. Discussion of, as well as explanation and clarification of issues and information in, the Downtown Plan EIR included exhaustive review in public forums, during the EIR process and the Plan approval process, before the Planning Commission and the Board of Supervisors.

The Downtown Plan EIR forecasts and analyzes the effects of cumulative development (including those of the project) in the Downtown C-3 district, to the year 2000. That analysis remains current and valid for future and project conditions, and thus, the project is not subject to CEQA Section 21166 regarding changed circumstances or new information.

As noted, the EIR cumulative impact analysis relies on the Downtown Plan EIR (DTPEIR) cumulative impact analysis, and that analysis remains valid. The current validity or "freshness" of the DTPEIR assumptions and analysis was recently established in the Final EIR (FEIR) for 235 Pine St. (84.432E, certified April 17, 1986). The material contained in the 235 Pine St. Draft Summary of Comments and Responses, at pp. 9-21, 25-30, 32-38 and 54-59 is summarized below and incorporated by reference herein.

The 235 Pine St. EIR Comments and Responses discuss the current validity of the Downtown Plan EIR assumptions and analysis with regard to development and land use forecasts, employment growth, transportation impacts, office rental and vacancy rates and housing production. The DTPEIR forecasts are considered to be long-term forecasts that focus on the amounts and types of growth expected through the year 2000. No attempt was made to forecast on an annual or short-term basis, and the long-term forecasts include a number of shorter-term ups and downs which average out over time. In general, it was concluded in the 235 Pine FEIR that no new data or information are available that would indicate that the long-term forecasts prepared for the DTPEIR are substantially off-target or misleading. With regard to the more specific issues such as transportation impacts, office vacancy rates, housing impacts, etc., it was concluded that the assumptions in the DTPEIR remain valid and the analysis remains current.

Thus, for example, it was concluded that the recent drop in gasoline prices in early 1986 was temporary and would not cause long-term shifts in mode split from transit to auto

use. This is due not only to the temporary nature of the gas price drop (as of June 1986, prices are on the increase again) but also to the fact that bridges and freeways providing access to San Francisco were generally at or near capacity during the p.m. peak at the time the DTPEIR baseline analyses were done, and are expected to continue to be at or near capacity, with increases in peak-of-the-peak over time (235 Pine Comments and Responses, p. 26; DTPEIR Vol. I, pp. IV.E. 32 & 34). While driving may temporarily appear attractive to some commuters, length of time of commute would deter others or cause shifts to carpools or transit by other drivers in the "push-pull" relationship between traffic congestion and transit ridership (see 235 Pine Comments and Responses, p. 27).

It was also concluded that housing completions in San Francisco were about 940 units in 1983-84 and about 1,000 units in 1985. These figures fall squarely within the DTPEIR forecast of 600-1,500 units per year on average (235 Pine St. Comments and Responses, p. 54). Similarly, the recent increase in office vacancy rates was forecast in the DTPEIR which anticipated that space approved in the mid- late 1980's would not be absorbed by 1990 (see 235 Pine St. Comments and Responses, pp. 21 and 34; DTPEIR Vol. 1, pp. IV.B. 23-29; Vol. III, Part 1, pp. C&R-B. 10-11).

Comments on this single-project EIR for 535 Mission St. are to be confined to those matters analyzed in this EIR, related to project-specific effects and the relation of this project to relevant cumulative impacts. Insofar as the Downtown Plan EIR is a final, certified document, it would be inappropriate to reopen the EIR process by accepting further comments on that EIR. Therefore, comments on material contained in the prior EIR from which this project-specific EIR is tiered will not be accepted.

Some of the effects presented in this Impact Chapter are not physical effects as defined by CEQA. They are included in the EIR for informational purposes only.

As discussed in the revised Initial Study, the project would be consistent with the Downtown Plan policies and ordinances for which a Final EIR (EE81.3) was certified October 18, 1984. The project's consistency with these local land use plans and zoning meets the CEQA requirements for a tiered EIR.

A. LAND USE AND ZONING

LAND USE

The following paragraph summarizes material from the Downtown Plan EIR. This summarized material is found on the following pages of the Downtown Plan EIR which are incorporated by reference:

Volume I: Final EIR text. Pages I.B.1–I.C.5; II.8–11; IV.B. 18–90; IV.C.29–61.
Volume II: Appendices. Appendices G and H.
Volume III, Part 1: Responses. Section B.

The Downtown Plan EIR provides forecasts of amounts of space likely to be found in the C-3 District in the future and of the numbers of employees likely to be working in the C-3 District in the future. These forecasts are described in detail; the results are found in the various tables in the EIR. Table IV.B.10, page IV.B.33 shows about 125,243,000 sq. ft. of space in the year 2000, of which about 78.9 million would be in office uses. Table IV.C.15, page IV.C.41 shows total employment forecasts of about 372,000 persons in 2000, in the C-3 District.

The project would continue the trend of high-rise office development in the South of Market area. Traditionally, the South of Market area has been characterized by businesses such as retail, printing and other services. Some older buildings in the area, which typically house these uses, have been replaced by high-rise office buildings.

The project would require demolition of two buildings, a three- and a four-story structure for construction of a 23-story office and retail building. The site contains uses including downtown-serving businesses such as an equipment sales and repair firm, a marking device manufacturer, a consulting firm and storage space; and a toy store. The project would replace these uses with a building containing 21 floors of offices, a net increase of about 249,970 sq. ft. of office space; and several retail spaces, a net decrease of about 16,240 sq. ft. of retail space; and would eliminate 18,540 gross sq. ft. of light-manufacturing space, 19,800 gross sq. ft. of downtown support space, and 17,880 gross sq. ft. of storage space. Parking (about 40 valet spaces) and open space would be new uses on the site.

The 535 Mission St. project, located within the C-3-O District, would be consistent with the designated primary use of this District, under the Downtown Plan, that is, high-density office and retail.

The project would be consistent with the description of the C-3-0 (Downtown Office) district described in Article 2, Section 210.3 of the City Planning Code. The Section describes the district playing a leading national role in finance, corporate headquarters and service industries and serving as an employment center for the region.

Parts of the South of Market Area, particularly east of the project block, have been developed with high-rises such as Fremont Center, Pacific Gateway, 100 Spear St. and 160 Spear St. The project would be similar to development on blocks to the north and east, and to the adjacent 100 First St. project currently under construction east of the site. The project would differ from development west, south and immediately north (the north side of Mission St.) of the project site. The project would represent the continuing expansion of the downtown financial district into the area surrounding the Transbay Terminal, into an area identified for such development in the Downtown Plan.

Recognizing that South of Market is no longer the industrial area it once was, the Department of City Planning has prepared a South of Market Plan (South of Market, Proposal for Citizen Review, published June 1985), designed to protect the area south and west of the C-3 Districts for light industrial, residential, artisan, business, and neighborhood-serving retail activities. The study area in the proposed South of Market Plan is the approximately 460 acres bounded roughly by the Rincon Hill and South Beach Planning Areas on the east, U.S. 101 on the west, the Yerba Buena Center Redevelopment Area and Minna St. on the north and Townsend St. on the south (the site is not within this planning area). The permanent zoning controls proposed by the Department for this South of Market Mixed-Use District would create six subareas, each with its own controls, to encourage retention of existing primary uses and to facilitate expansion of similar uses. Uses paying higher rents such as high-rise offices, wholesale trade, bars, and restaurants with liquor licenses would be strictly limited to certain street frontages. The subareas are designated as light industrial/commercial, residential, and residential hotel, nighttime entertainment, (architectural) preservation, and office.

THE DOWNTOWN PLAN

The Downtown Plan, part of the Master Plan, effective October 17, 1985, contains comprehensive controls regarding scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The relationship of the project to the major sections of the Downtown Plan is discussed here and summarized in Table 2, p. 61.

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE DOWNTOWN PLAN PLANNING CODE REQUIREMENTS

	Planning Code Requirements/Limits	Project
Height (Sections 260 and 263.9)	605 ft./a/	300 ft.
Bulk (Section 270)		
Base Height	103 ft.	103 ft.
Lower Tower		
Length	160 ft.	160 ft.
Diagonal	190 ft.	174 ft.
Maximum Average Floor	17,000 sq. ft.	13,300 sq. ft.
Maximum Floor	20,000 sq. ft.	13,450 sq. ft.
Upper Tower		
Length	130 ft.	145 ft.
Diagonal	160 ft.	155 ft.
Maximum Average Floor	12,000 sq. ft.	9,650 sq. ft.
Maximum Floor	17,000 sq. ft.	10,940 sq. ft.
Volume Reduction (above 200 ft.)	13%	27%
FAR (Section 124)	9:1 Basic, 18:1 Maximum with TDR	15.6:1
TDR (Section 128)	Plan allows for transfer of development rights from buildings designated as Category I-IV for architectural merit.	108,130 sq. ft. of TDR would be used on the development site.
Architectural Resources (Article II)	Designates buildings in Categories I to IV based on architectural merit, with related provisions regarding preservation.	Not applicable. Buildings on-site are not designated in any Category or within a designated Conservation District.
Open Space (Section 138)	5,100 sq. ft.	5,700 sq. ft. on site: indoor winter garden, sun terrace, and amphitheater on sun terrace.
Shadow (Sections 147 and 295)	Minimize substantial shadow impacts on public plazas and other publicly accessible spaces, without unduly	Project would add new shadow to the 100 First St. sun terrace during afternoon hours all year. Up until

(continued)

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE DOWNTOWN PLAN PLANNING CODE REQUIREMENTS (Continued)

	Planning Code Requirements/Limits	Project
Shadow (Cont.)	restricting development potential; consider duration, area, and importance of sunlight to utility of open space. No new shadow on Recreation and Park Dept. property from one hour after sunrise to one hour before sunset (per Proposition K).	about 1 p.m., the addition of the project open space to the 100 First St. sun terrace would represent an increase of open area in the sun. It would shade the Golden Gate University entry way between 9 a.m. and 11 a.m. March through September. The project would cast no new shadow on the Transbay Terminal passenger loading or driveway areas. The project would shade about 10% of Tishman Plaza around 10 a.m. in winter months. The project would not cast any new shadow on property under the jurisdiction of Proposition K.
Wind (Section 148)	Ground-level winds may not exceed (more than 10% of the time year round between 7:00 a.m. and 6:00 p.m.), 11 mph in areas of substantial pedestrian use and 7 mph in public seating areas.	At five of the tested 24 locations, wind would decrease (by one mph). Winds would remain unchanged at three locations and would increase at 15 locations (by one to three mph). The project would result in winds which range from four mph to nine mph. The applicable comfort criterion would be met at each tested location.
Art (Section 149)	Publicly accessible art equal to 1% of construction cost.	Project would comply in a manner to be determined.
Off-Street Loading	0.1 space per 10,000 sq. ft. of office space; three spaces for the project, or equivalent.	Equivalent to three spaces: Two freight loading spaces and two service (van) loading spaces.

(continued)

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE DOWNTOWN PLAN PLANNING CODE REQUIREMENTS (Continued)

	Planning Code Requirements/Limits	Project
Parking (Section 155.g)	Rate structure to encourage short-term use; long-term use discouraged.	40 short-term valet spaces. Rate structure would favor short-term users. Vanpool and bicycle parking would be provided.
Transportation Broker (Section 163)	Required.	Would be provided by building management.
OAHPP	OAHPP requires 96 units for proposed 249,970 net new sq. ft. of office.	Sponsor has contributed funds for construction of a low- and moderate-income housing project at Leavenworth and McAllister Sts. The housing development, sponsored by Catholic Social Services, is nearing completion and is expected to be available for occupancy in the summer of 1986.
Employment (Section 164)	Local employment program and employment brokerage services required for buildings exceeding 100,000 sq. ft. to encourage employment and work training for San Francisco residents.	Building management to provide brokerage services.
Childcare (Section 315)	On-site childcare services or in-lieu fee required.	Project would comply, in a manner to be determined.
SECTION 309 EXCEPTIONS REQUIRED FOR THE PROJECT		
Separation of Towers (Section 132.1(c))	Minimum setback above base of 15 ft. from interior property line or center line of street.	The project would be set back less than the required amount from east and west property lines. Except for the center, the west wall of the project would be set back from the center line of Shaw Alley

(Continued)

TABLE 2: RELATIONSHIP OF THE PROJECT TO THE DOWNTOWN PLAN PLANNING CODE REQUIREMENTS (Continued)

	Planning Code Requirements/Limits	Project
Towers (cont.)		by about 11 ft. 9 in. (3 ft. 3 in. less than the required amount) and the east wall would not be set back from the interior property line which abuts the 100 First St. sun terrace. Exception to the setback requirements is allowable in accordance with the provisions of Section 309 under Section 132.1, subsections (c)2.(A) and (c)2.(B).
Bulk Limits (Section 270(c)2)	Maximum length in the upper tower of 130 ft.	The project would have a maximum length of about 145 ft. Exception to bulk requirements is allowable in accordance with the provisions of Section 309 under Section 272(a). Such an exception may be granted if it permits "achievement of a distinctly better design."

/a/ According to Section 263.9(a), in S district additional height up to 10% (in this case 55 ft.) of the allowable height (in this case 550 ft.) may be permitted as an extension of the upper tower provided that the volume of the upper tower was extended is reduced by the percentage shown in Chart B of Section 270(c). In addition, a 20-ft.-tall penthouse is allowable.

SOURCE: Environmental Science Associates, Inc.

Under the Downtown Plan, the basic Floor Area Ratio (FAR) for the C-3-0 district, including the project site, is 9:1. Floor Area Ratio is the ratio of gross floor area to site size. A number of building uses can be excluded from the gross floor area calculation. The Downtown Plan and Planning Code (Section 102.8(B)1-16) includes exemptions from gross floor area for the FAR calculation, including, for example: ground-floor building service and internal circulation; required replacement short-term parking; cultural, religious and social service areas; and ground-floor retail, restaurant, and personal service space up to 75% of ground-floor open space and interior areas (Section 102.8(b) 11 to 16).

Development greater than the basic 9:1 FAR is allowable up to a maximum of 18:1 FAR, through transfer of development rights (TDR), from sites within the same zoning district that include architecturally significant buildings with unused potential floor area. The combined basic FAR over the preservation (sender) and receiver sites may not, however, exceed 9:1. The building on the development site receiving TDR must comply with all limitations imposed by the Code, including review under Section 309: Permit Review in C-3 Districts.

The Downtown Plan includes four categories of architecturally significant buildings: Category I (significant buildings retain essentially intact); Category II (significant buildings, additions to height at rear may be feasible); Category III (contributory buildings outside a conservation district and of individual importance); and Category IV (contributory buildings, in a conservation district; encourage retention; allow replacement as a contributory building). TDRs may not be transferred to sites containing significant or contributory buildings, if development would result in demolition or substantial alteration of these buildings. Neither of the buildings on the site are listed in any category. About 108,130 gross sq. ft. of TDR is proposed to be transferred to the project from as yet unidentified sites. The overall FAR for the development and contributory lots would be 9:1, or less.

The gross floor area of the project including the basement would be about 295,560 sq. ft. The building would contain about 255,010 gross sq. ft. of floor area applicable to the FAR of the building; as calculated under the Planning Code, the FAR of the project over the 16,320-sq.-ft. development site would be 15.6:1. Excluded from the FAR of the building are certain mechanical space, accessory parking, and ground floor uses. Personal services, retail and restaurant uses may not exceed 75% of the area of the ground-floor interior and open space areas; subject to the provisions of Section 309, a portion of these uses may be located on a mezzanine level. Under Section 102.8(b)6, floor area for accessory parking and loading space, as defined in Section 204.5, would not be counted in the FAR calculation of the building. Accessory parking space may include up to seven percent of the total gross floor area of the building; parking area in excess of the seven percent would require Conditional Use authorization and would apply to FAR. The project would provide about 11,000 gsf of parking space (about 40 short-term spaces), below the 23,256 gsf (seven percent) allowable for the project.

The site is in a 550-S height and bulk district; the height limit is 550 ft. Structures up to 605 ft. are allowable under the provisions outlined for optional upper tower extensions.

Section 263.9 states that the "additional height may be allowed pursuant to the provisions of Section 309 only to the extent it is determined that the upper tower volume is distributed in a way that will add significantly to the sense of the slenderness of the building and to the visual interest of the termination of the building, and that the added height will improve the appearance of the skyline when viewed from a distance, will not adversely affect light and air to adjacent properties, and will not add significant shadows to public open spaces." A total additional 20 ft. in height is allowed for a mechanical penthouse enclosure under Section 260(b), subject to the requirements of Section 141(b), pursuant to the provisions of Section 309. At 300 ft. (including a 16-ft.-tall mechanical penthouse), the project would be 325 feet lower than the maximum allowable height. The S bulk designation controls building dimensions, floor sizes and bulk through Downtown Plan Bulk Control Zone Charts B and C. Essentially, these bulk controls require setbacks, smaller floor sizes and slimmer building profiles with increased building height. The proposed controls require a base zone, not exceeding 1.25 times the width of the widest abutting street, in this case, Mission St. which is about 82.5 ft. wide, delineated by a setback, cornice or other architectural feature. The base of the project would be about 103 ft. tall, the maximum height allowed by the controls (1.25 x 82.5 = 103 ft.).

The project's lower tower would extend from the building base, at about 103 ft. to a height of about 198 ft.; the upper tower would extend above this to a height of about 284 ft. with a 16 ft. mechanical penthouse. With an average floor area of 13,300 sq. ft., and a maximum floor area of 13,450 sq. ft., a diagonal dimension of about 174 ft. and a maximum length of 160 ft., the project would be within the lower tower bulk limits (a maximum average floor area of 17,000 sq. ft., a maximum floor area of 20,000 sq. ft., maximum diagonal dimension of 190 ft., and a maximum length of 160 ft.) specified in the Downtown Plan and City Planning Code. For a 300-ft.-tall building with a lower-tower floor size of about 13,300 sq. ft., the "S" bulk controls require a volume reduction in the upper tower (above about 200 ft.) of about 13%; the project would have a volume reduction of about 27%.

The maximum length of the project in the upper tower would be about 145 ft., thus exceeding the maximum of 130 ft. permitted by the controls; the project would thus require an exception under Section 272(a) in accordance with Section 309. The maximum diagonal of about 155 ft. would be below that (160 ft.) specified by the City Planning Code. With an average upper tower floor area of about 9,650 sq. ft. and a maximum upper floor area of about 10,940 sq. ft. the project would be within the maximum areas specified

by the City Planning Code (maximum average floor size of 12,000 sq. ft. and maximum floor area of 17,000 sq. ft.).

The Downtown Plan and City Planning Code require setbacks above the building base to allow for separation of and light and air between towers (Section 132.1(c)1). Above the base, the required setback is a minimum of 15 ft. from the interior property line or the center of a public right-of-way, as the case may be, up to a height of 300 ft.; above 300 ft. the set back requirement increases linearly up to a height of 550 ft., to a maximum of 35 ft. Exception to setback requirements is allowable, pursuant to the provisions of Sections 132.1(c)2A and B, subject to approval under Section 309. Exceptions are allowable provided there are compensating recesses beyond the required setback within 100 vertical ft. of the encroachment, which recesses are at least equal in volume to the volume of the encroachment; and where it can be shown that restrictions on adjacent properties make it unlikely that development will occur at a height or bulk which would, overall, impair access to light or air or the appearance of separation between buildings. The project would not set back on its eastern property line; the 100 First St. sun terrace (approved as permanent open space) would provide an approximate 100 ft. separation between the project building and the 100 First St. building. On the west, above the building base, the area at the ends of the facade would set back from the center line of Shaw Alley by about 11 ft. 9 in. and would thus encroach on the setback requirement by about three feet; compensating recesses, as described in the Planning Code, would be provided (in the center and at the ends of the west face).

The Downtown Plan and the Planning Code require that shadows on publicly accessible open space be minimized (Section 147). New buildings are to be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site, to reduce substantial shadow impacts. Among the factors for the determination of shadow impact are: amount of area shadowed; duration of the shadow; and the importance of sunlight to the utility of the type of open space being shadowed. (See p. 83 for a discussion of shadow impacts of the project).

The Downtown Plan requires usable indoor or outdoor open space, accessible to the public, as part of new downtown development. The ratio of usable open space to new building space in the C-3-0 is one sq. ft. of open space for every 50 sq. ft. of gross floor area (Section 138), or about 5,100 sq. ft. for the project. The project would include 5,700 sq. ft. (about 600 sq. ft. more than required) of open space on the second floor in an indoor

winter garden, and sun terrace with an amphitheater on the second floor, that would connect to the adjacent 100 First St. sun terrace.

The Downtown Plan requires: That the project sponsor provide child care facilities (either on-site or by contribution); that the project sponsor contribute to public art equal to one percent of construction cost; and that the project provide the equivalent to three off-street loading spaces. The project sponsor would comply with all these requirements.

THE MASTER PLAN

The project would respond to some policies of the Commerce and Industry Element of the City's Master Plan, and would not respond to others. It would respond to Objective 4, Policy 1, to maintain and enhance a favorable business climate in the City. Although the project would provide unskilled clerical and janitorial jobs, it would result in a net decrease in blue-collar jobs on the site. To that extent, it would not respond to Objective 3, Policy 1, which seeks to provide "employment improvement opportunities for unskilled and semi-skilled workers." The overall employment that would be generated by the project is described in Chapter H, p. 121, of this chapter.

The project is intended to respond to Objective 4, Policy 2, to promote and attract economic activities of benefit to the City. The project would respond to Objective 6, to support San Francisco as a "prime location for financial, administrative, corporate, and professional activity". The project would respond to Policy 1 of this Objective, to encourage continued growth of downtown office activity.

Policy 2 of Objective 6 is to guide "office development to maintain a compact downtown core so as to minimize displacement of other viable uses". The project would respond to Policy 2 by concentrating office uses near a major downtown transit center. It would result in a net decrease of retail, downtown support and light-industrial uses on the site. The loss of uses other than office would not respond to Policy 2 of Objective 6. The project would respond to Policy 4 of Objective 6 of the Commerce and Industry Element to provide "amenities for those who live, work and use the Downtown" by provision of retail and open space on the first and second floors; retail space would be about 16,240 sq. ft. less than existing conditions, and open space would be about 5,700 sq. ft. more than existing (none exists on site now).

B. URBAN DESIGN

The project would demolish two, small-scale buildings and construct a high-rise structure similar in scale to existing and proposed highrises in the South of Market area and contrasting in scale with existing older South of Market development (see Figures 16 and 17, pp. 70 and 71). Demolition of the 535 Mission St. building, with the recent demolition of four "C"-rated structures on the 100 First St. site, would affect the continuity of one- to five-story brick buildings typical of the South of Market area south and southwest of the site and replace them with new development. The project would be of a transition height between taller buildings to the north and at 100 First St. (385-ft.-tall), and to the lower height district (200 ft.) along Second St. and to Yerba Buena Center's, with the elevated park above Moscone Center.

The Urban Design Element of the San Francisco Master Plan contains policies and principles which may be used to evaluate the proposed project. Table 3, p. 72, The Relationship Between Applicable Urban Design Policies of the Master Plan and the Proposed Project, compares the project to these policies.

The architectural base element at a height of 84-ft.-tall would be of similar height to the 85-ft.-tall building across Shaw Alley and other older structures in the project vicinity; it would be of similar height to the existing street wall along Mission St.

At the rear of the building, facing south would be a 5,700 sq. ft. open space consisting of a indoor winter garden, an amphitheater and sun terrace at the second floor. The building would be cut across diagonally at the southeast corner at the second floor, to form the open space and to allow light and air onto the project open space and the adjacent 100 First St. sun terrace in the early afternoon. The project open space would be paved and landscaped in a manner similar to the adjacent sun terrace of 100 First St. The adjacent terrace would separate the project from the 100 First St. building under construction on the east. Together, the project open space and the adjacent sun terrace would provide about 20,500 sq. ft. of open space.

Setbacks above the base and at upper levels of the project are intended to diminish the apparent bulk of the building. Setbacks and horizontal belt courses in the project would be at heights which would relate to adjacent and nearby development including older buildings on Mission and 100 First St. (the project is designed to give a stepping down effect from 100 First St.). The facades of the building would be faceted and sculpted to

FIGURE 16: 535 MISSION
PHOTOMONTAGE OF PROJECT FROM
NORTH SIDE OF MISSION STREET

SOURCE: DOUGLAS SYMES

FIGURE 17: 535 MISSION
PHOTOMONTAGE OF PROJECT : VIEW NORTHEAST
FROM SECOND AND MISSION STREETS

SOURCE: DOUGLAS SYMES

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 1, Policy 1 – Recognize and protect major views in the City, with particular attention to those of open space and water." (p. 10)	The project is outside major designated view corridors. The project would not obstruct any public views of the Bay.
Objective 1, Policy 3 – "Recognize that buildings, when seen together, produce a total effect that characterizes the City and its districts." (p. 10)	This project, in combination with other recently constructed, approved and proposed developments, would visually define an expanded downtown.
Objective 1, Policy 6 – "Make centers of activity more prominent through design of street features and by other means." (p. 12)	With 100 First St., the project would increase the visual prominence of the area, a center of pedestrian activity as a major transit access point. The project would include ground-floor retail and a second floor publicly accessible open space with direct access to the adjacent 100 First St. sun terrace, and would include street trees.
Objective 2, Policy 4 – "Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development." (p. 25)	The project would demolish two, post-fire, industrial buildings, one of which, the Goodyear building, is rated "C" by Heritage. Neither building on the site is a landmark, or is included in significant or contributory status under the Downtown Plan, or rated in the City's 1976 architectural survey. Through the use of TDR, the project would preserve a significant or contributory building elsewhere in the C-3-O district.
Objective 2, Policy 6 – "Respect the character of older development nearby in the design of new buildings." (p. 25)	The project would differ in form and scale from nearby older buildings on Mission St. Building facade materials would be light-colored stone, metal and glass; older buildings are generally stucco, stone or brick. The project would be the second high-rise building (after 100 First St.) on a block of one- to five-story buildings. The scale of the building base would be similar to the height of older structures in the vicinity.

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 3, Policy 1 – "Promote harmony in the visual relationships and transitions between new and older buildings." (p. 36)	The project would include an 84-ft.-tall architectural base element intended to relate to the older 85-ft.-tall building across Shaw Alley and other older development along Mission St. The project would be the second high-rise development on the project block (it would be about 85 ft. shorter than 100 First St.), which has one- to five-story buildings. (The project would be 19 to 22 stories taller than these buildings.) Low-rise development is located generally south, west and immediately north (north side of Mission St.) of the site, while there are a number of highrises to the east and further north; the project would be of intermediate height. The project's stair-step upper tower, set backs and sloped roof would contrast with the taller, box-shaped buildings now forming much of the southern skyline.
Objective 3, Policy 2 – "Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance." (p. 36)	The project tower would be constructed of light-colored stone and lightly tinted glass. Existing structures in the area are mainly brick, stucco, stone, brick and concrete of various colors; the 100 First St. project is proposed to be mainly light-colored stone. The project would contrast in color with existing brick development. The building shape would be a beveled rectangle above a six-story rectangular base, except for the large diagonal cut at the southeast corner of the second floor, for sun access; the building top would have an octagonal, pitched and stepped roof form. Existing development in the area is relatively rectangular. Most existing developments in the immediate vicinity are low-rise; thus the project would be visually prominent. Development in the vicinity including 100 First St. (under construction), 49 Stevenson (approved) and 524 Howard and 526 Mission (both proposed) would be of similar scale to the project.

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 3, Policy 3 – "Promote efforts to achieve high quality of design for buildings to be constructed at prominent locations." (p. 36)	The project would be at the southern edge of the C-3 District and as such would be visible on all southern and eastern approaches to the City; the site is within one block of the Transbay Terminal, the second largest public transportation facility in the Bay Area (after the airport). The building would include architectural features intended to complement adjacent development and be in character with high-rise development both existing and proposed in the C-3 District of San Francisco.
Objective 3, Policy 4 – "Promote building forms that will respect and improve the integrity of open spaces and other public areas." (p. 36)	The project would include an indoor winter garden, sun terrace, and amphitheater totalling about 5,700 sq. ft., and would add this space to the 100 First St. 14,800-sq.-ft. sun terrace. Up until about 1 p.m., the addition of the project open space to the 100 First St. sun terrace would represent an increase of open area in the sun. The project would create new shadows on the entry plaza of Golden Gate University and would shade its own open space and the 100 First St. sun terrace during afternoon hours. The large diagonal cut on the southeast corner would allow sunlight to reach the project and adjacent sun terrace later in the afternoon than would a rectangular building.
Objective 3, Policy 5 – "Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development." (p. 36)	As stated above, the project would be located along the southern edge of the C-3 District. It would be visible on the City skyline when viewed from such areas as Twin Peaks and Potrero Hill. The 300-ft.-tall building would be of similar scale to newer highrises in the project area. It would contrast with most older development in the South of Market area, which ranges from 26 ft. to 56 ft. in height. The height of the base element is intended to relate to existing low-rise buildings along Mission St. The project would be similar in height to buildings on Market St., and about

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN PLAN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Objective 3, Policy 5 (Cont.)	300 ft. shorter than the Fremont Center Tower. It would be about 85 ft. shorter than the 100 First St. building and about the same height as the proposed 524 Howard St. building.
Objective 3, Policy 6 – "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction." (p. 37)	The project would be greater in bulk than most of the older low-rise buildings in the vicinity, and similar in bulk to newer development. Its maximum dimensions would be about 100 ft. (Mission and Minna St. at the base) by about 160 ft. (Shaw Alley and east face at the base). It would be similar in bulk to some new developments such as Fremont Center and 100 First St. With 100 First St., the project would dominate the project block.
DOWNTOWN PLAN – URBAN FORM CHAPTER – POLICIES	
"Relate the height of buildings to important attributes of the city pattern and to the height and character of existing and proposed development." (p. 84)	The project is designed to relate to existing downtown core development and development proposed in the C-3-0 (SD) district. It would not relate to existing older development in the immediate site area, in height. It would relate to the adjacent 100 First St. building. The project would be of intermediate height, shorter than buildings north and east and taller than buildings west and south.
"Foster sculpturing of building form, less overpowering buildings and more interesting building tops." (p.84)	The project would have a slender, stepped profile with a distinctive octagonal, pitched and stepped roof form.
"Maintain separation between buildings to preserve light and air and prevent excessive bulk." (p. 96)	Above the base (as defined by the Downtown Plan); the building would encroach into the area of separation of towers setback requirement by about three ft. on the west; it would include compensating setbacks; the building would adjoin Shaw Alley on this side. The building would not set back from the easterly property line; the 100 First St. sun terrace would provide a separation from that project. Exception to setback requirements are provided in the Planning Code.

TABLE 3: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE MASTER PLAN AND THE PROPOSED PROJECT (Continued)

DOWNTOWN PLAN POLICIES, continued	RELATIONSHIP OF PROJECT TO POLICIES
"Assure that new buildings contribute to the visual unity of the City." (p. 105)	The building would be clad in light-toned material and would not use mirrored glass. It would have a shaped roof form and stepped facades. The design is intended to relate to newer buildings with sculptured towers, such as 100 First St.
"Encourage more variation in building facades and greater harmony with older buildings through use of architectural embellishments and bay or recessed windows." (p. 105)	The building's entrance would be recessed; a stone base element defined by projecting corners (corners above the base, in the lower tower, would be chamfered) would be intended to provide a relationship with older buildings in terms of height and material. The building would have a varied facade. It would not reflect design elements of older buildings, such as industrial sash enframed windows, cornices, etc. The scale of detail of the project is intended to relate to older buildings.
"Conserve the traditional street to building relationship that characterizes downtown San Francisco." (p. 106)	The project's base would be built to lot lines and would be of similar height to the prevailing street wall along Mission St.
"Provide setbacks above a building base to maintain the continuity of the predominant streetwalls along the street." (p. 106)	The building would step in at the sides and top and above the base. It would require exception to Planning Code separation of towers requirements. The building would be set back from the base at the corners.
"Maintain and enhance the traditional downtown street pattern of projecting belt courses on taller buildings." (p. 107)	The project would not incorporate a projecting belt course.
"Use design and materials and include activities at the ground floor to create pedestrian interest." (p. 107)	Ground-floor retail uses, a triple-height stairway leading to the project sun terrace and a recessed entry would provide pedestrian interest.

SOURCE: Urban Design Element, San Francisco Comprehensive Plan, 1971; Downtown Plan, October 1985; Environmental Science Associates, Inc.

complement nearby older development. The recessed entryway and triple-height stairway at ground level along with retail space would provide pedestrian interest.

The pitched and stepped octagonal roof design would be most visible on the City's southern skyline viewed from the east and south. The building's stepped top would contrast with the taller, more box-like buildings now forming much of the southern skyline.

The project, in conjunction with 100 First St. (under construction) and the proposed 526 Mission and Second and Mission Sts. developments, would change views for people coming to and going from the Transbay Terminal. The view west along Mission St. from the Transbay Terminal, presently defined by five- to eight-story buildings of similar mass, backed by the Pacific Telephone building, would be altered by the project. The proposed project would add to the visual effect of high-rise construction in the project area.

The project tower would be visible from long-range viewpoints as well as neighboring buildings and street-level areas in surrounding blocks (see Figures 18 to 20, pp. 78 to 80). The project would be visible from Twin Peaks and from Potrero Hill in front of taller development as part of the Downtown office district (see Figures 21 and 22, pp. 81 and 82). The project would not be visible from Nob Hill due to intervening high-rise structures. From portions of the San Francisco - Oakland Bay Bridge the project would be visible in the cluster of high-rise structures west of the San Francisco waterfront and south of Market St. The project would appear as part of the downtown skyline's southern edge from southern approaches to the City, including the James Lick Skyway and Highway I-280. The project would be about 200 ft. shorter than buildings on Market St., and about 300 ft. shorter than the Fremont Center Tower. It would be about 85 ft. shorter than the 100 First St. building and about the same height as the proposed 524 Howard St. building.

Views of the project from adjacent streets and buildings would include all or parts of the proposed tower. The project would obstruct views east from the Pacific Telephone building on Second and Mission Sts. and south from the upper floors of the Chevron and Tishman buildings on Market St. Views to the west from the lower stories of Fremont Center would also be reduced.

FIGURE 18: 535 MISSION
PHOTOMONTAGE OF PROJECT: VIEW SOUTHWEST
FROM FREMONT CENTER PLAZA

SOURCE: DOUGLAS SYMES

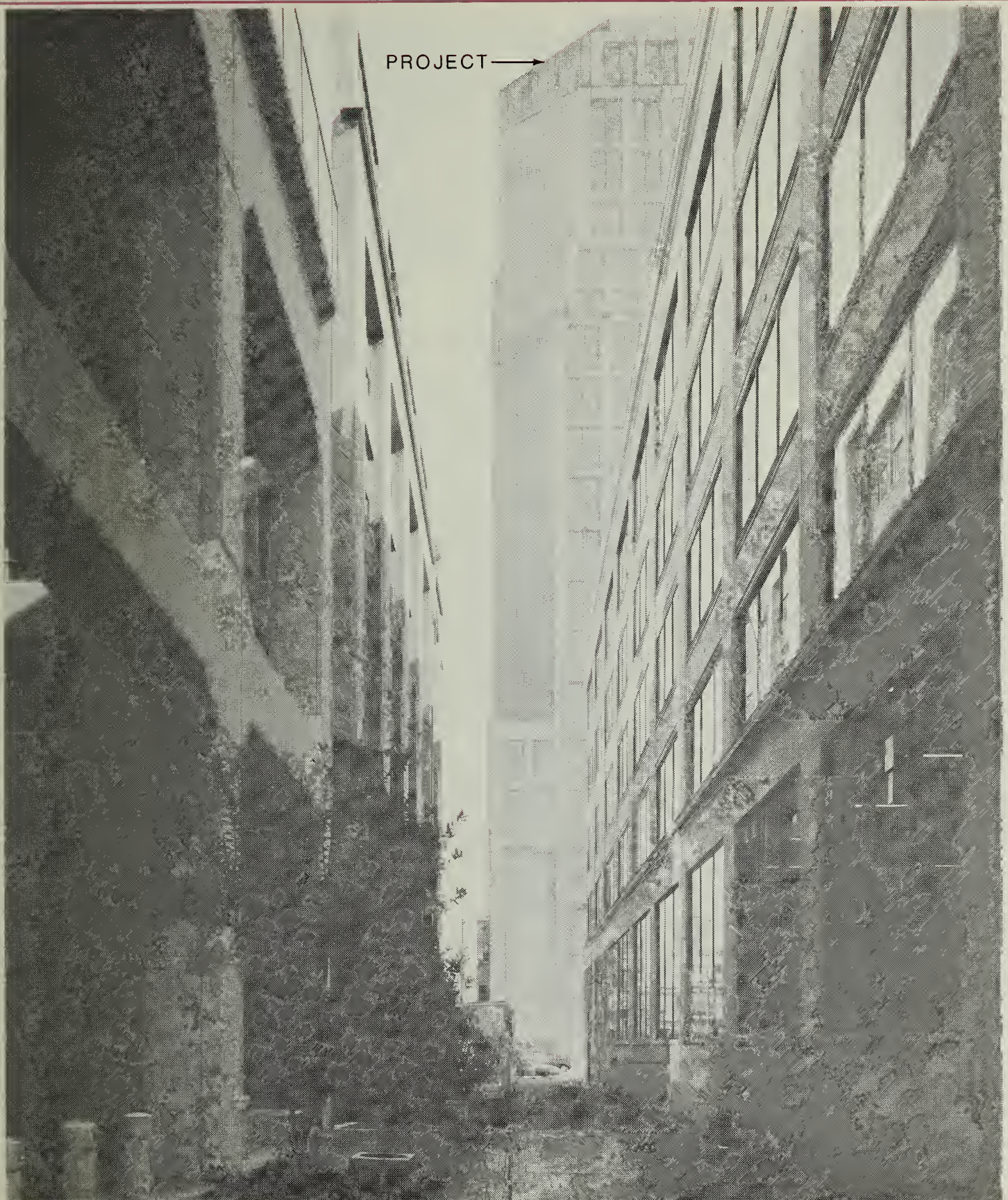


FIGURE 19: 535 MISSION
PHOTOMONTAGE OF PROJECT: VIEW SOUTH
FROM ECKER AND JESSIE STREETS

SOURCE: DOUGLAS SYMES

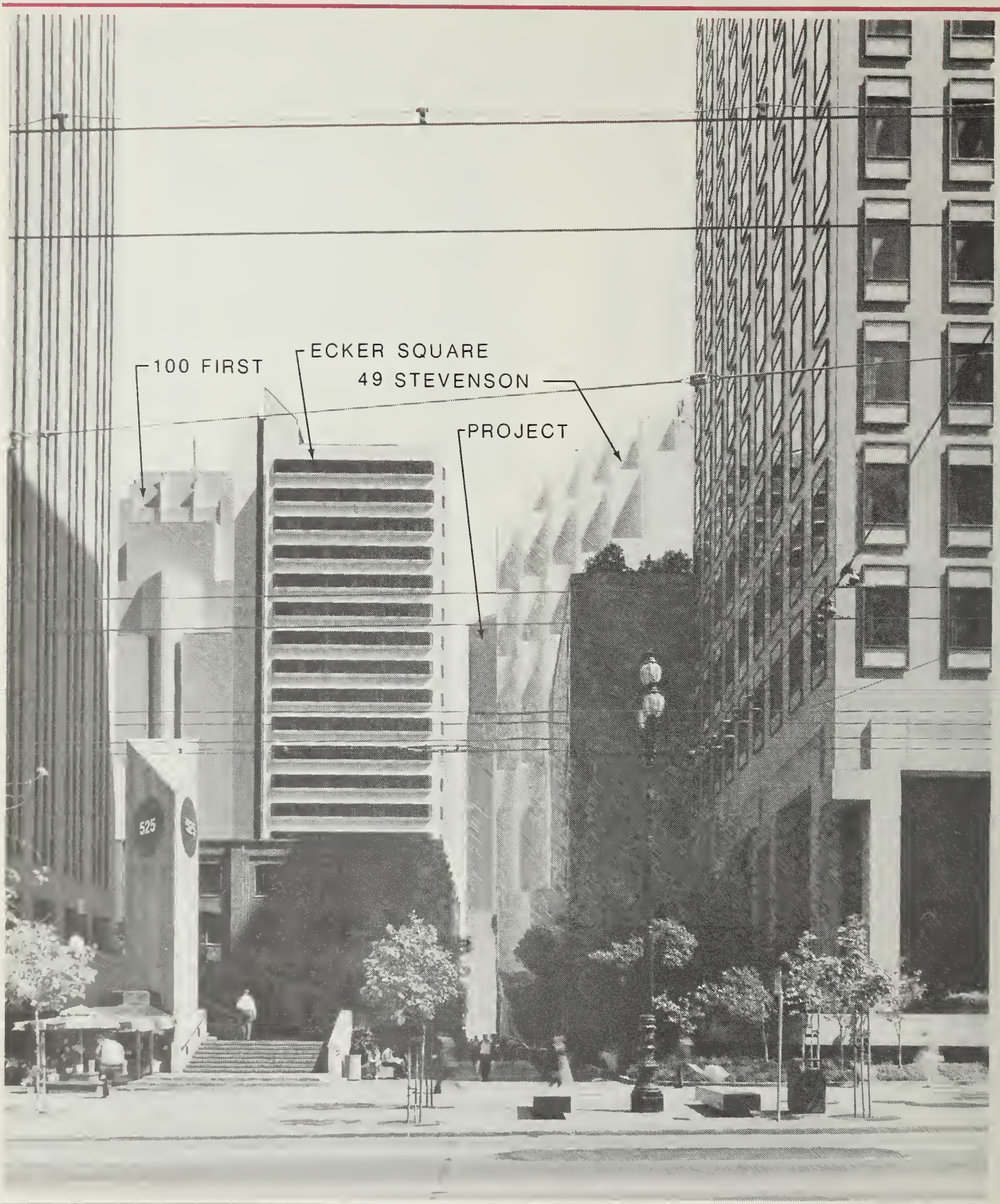


FIGURE 20: 535 MISSION
PHOTOMONTAGE OF PROJECT: VIEW SOUTH
FROM MARKET STREET

SOURCE: DOUGLAS SYMES

MAJOR STRUCTURES EXISTING, PROPOSED OR UNDER CONSTRUCTION

1 333 BUSH
2 345 CALIFORNIA
3 CROCKER TOWER
4 STEVENSON PLACE
5 FREMONT CENTER
6 90 NEW MONTGOMERY
7 PACIFIC GATEWAY
8 PROJECT (535 MISSION)
9 PACIFIC BELL
10 100 FIRST STREET (U.C.)

FIGURE 21: 535 MISSION
VIEW OF THE PROJECT FROM TWIN PEAKS

MAJOR STRUCTURES EXISTING PROPOSED OR UNDER CONSTRUCTION

1 CHEVRON BUILDING
2 345 CALIFORNIA
3 525 MARKET (TISHMAN)
4 PROJECT (535 MISSION)
5 100 FIRST STREET (U.C)
6 METROPOLITAN LIFE
7 ST.FRANCIS PLACE
8 FREMONT CENTER
9 EMBARCADERO 4
PACIFIC GATEWAY
11 123 MISSION
12 ONE MARKET PLAZA

SOURCE: ESA

FIGURE 22: 535 MISSION
VIEW OF PROJECT FROM POTRERO HILL

C. SHADOW AND WIND

SHADOW

Shadow patterns for existing and approved buildings in the project area (including from existing buildings on the site) and the project are shown for 10 a.m, noon and 3 p.m. for the four seasons: during winter and summer solstices when the sun is at its lowest and highest, and during the spring and fall equinoxes when the sun is at its midpoint (see Figures 23 to 26, pp. 84 to 87). Conditions from July through November mirror the conditions from January through May (using solar time). The analysis includes shadows cast on streets, sidewalks, pedestrian areas, and open space in the area potentially affected by the proposed project. A shadow outline of the project as though cast on a flat plane is shown to illustrate the scale of the project in relation to the structures that would surround it. The diagrams show existing and proposed building shadows and net new shadow due to the project.

Additional shadow diagrams were drawn at various times during the morning hours of all four seasons to determine effects of the project on the Golden Gate University entry area (these diagrams are on file at the Office of Environmental Review, Department of City Planning, 450 McAllister St., San Francisco). Open spaces in the project vicinity include Tishman Plaza, on Market St. at the north end of Ecker St.; Central Plaza (455 Market) and Metropolitan Life open space, on Market St. between First and Fremont Sts. (not shown on diagram); the Golden Gate University on Mission St. across from the project site 1) split level entry/seating area with a lower-level outdoor seating area, and 2) an outdoor cafeteria seating area on the sixth floor; Fremont Center retail plaza, fronting First St. and extending into that block; a 14,800-sq.-ft. sun terrace to be developed on the roof of the garage east of the site as part of the 100 First St. development. There is also the open area and passenger unloading areas for the Transbay Terminal between First and Fremont Sts. on Mission St. The project would include a sun terrace (with an amphitheater) and an indoor winter garden. A part of the project open space (at the southwest corner of the site as shown on the following diagrams) would be covered by building above, and would receive some direct sun in the morning. The diagrams do not show sun on this area. Project shadow effects on affected open spaces are discussed below.

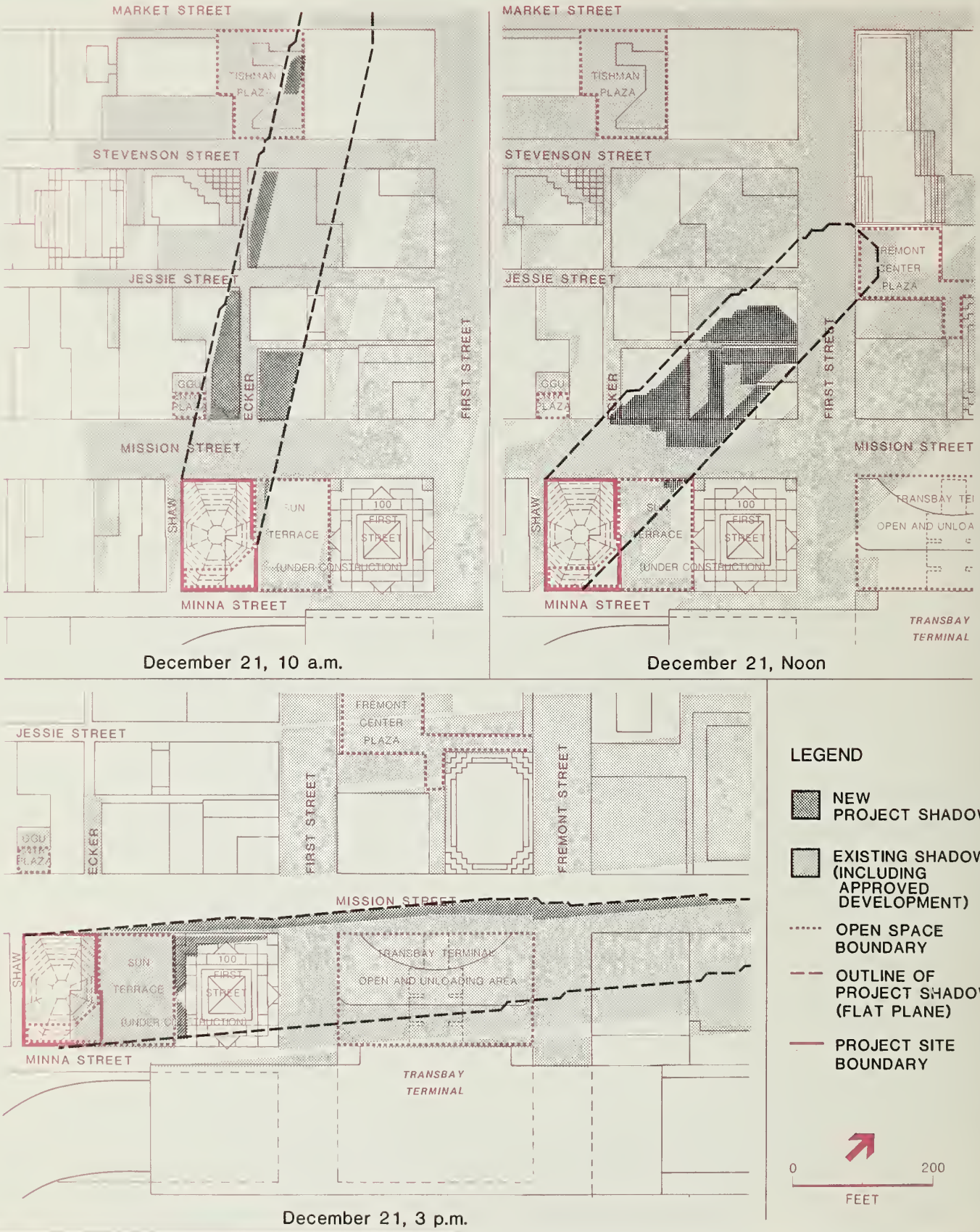


FIGURE 23: 535 MISSION PROJECT SHADOW PATTERN- DECEMBER 21 (10 a.m., Noon, 3 p.m.)

SOURCE ESA

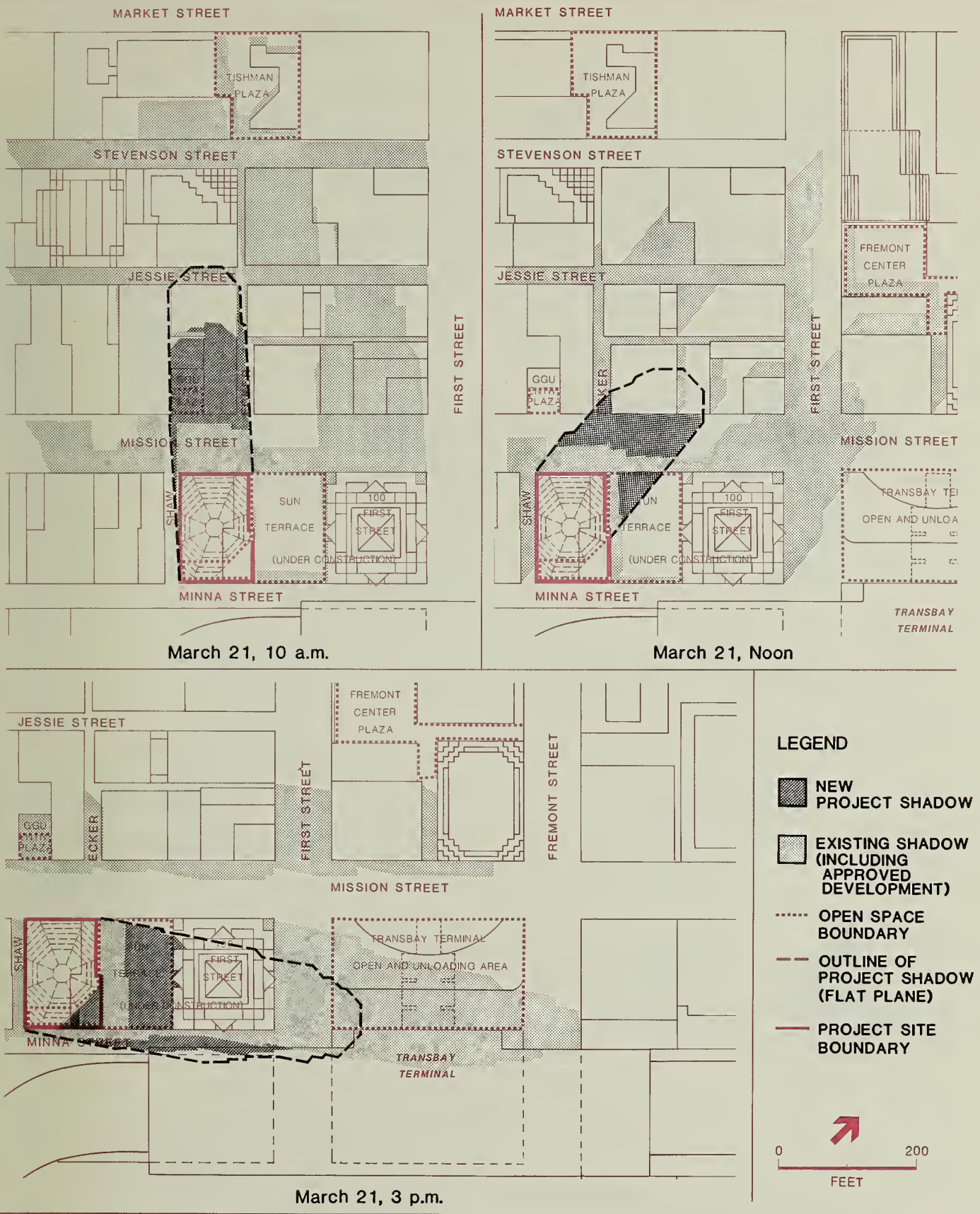


FIGURE 24: 535 MISSION PROJECT SHADOW PATTERN– MARCH 21 (10 a.m., Noon, 3 p.m.)

SOURCE: ESA

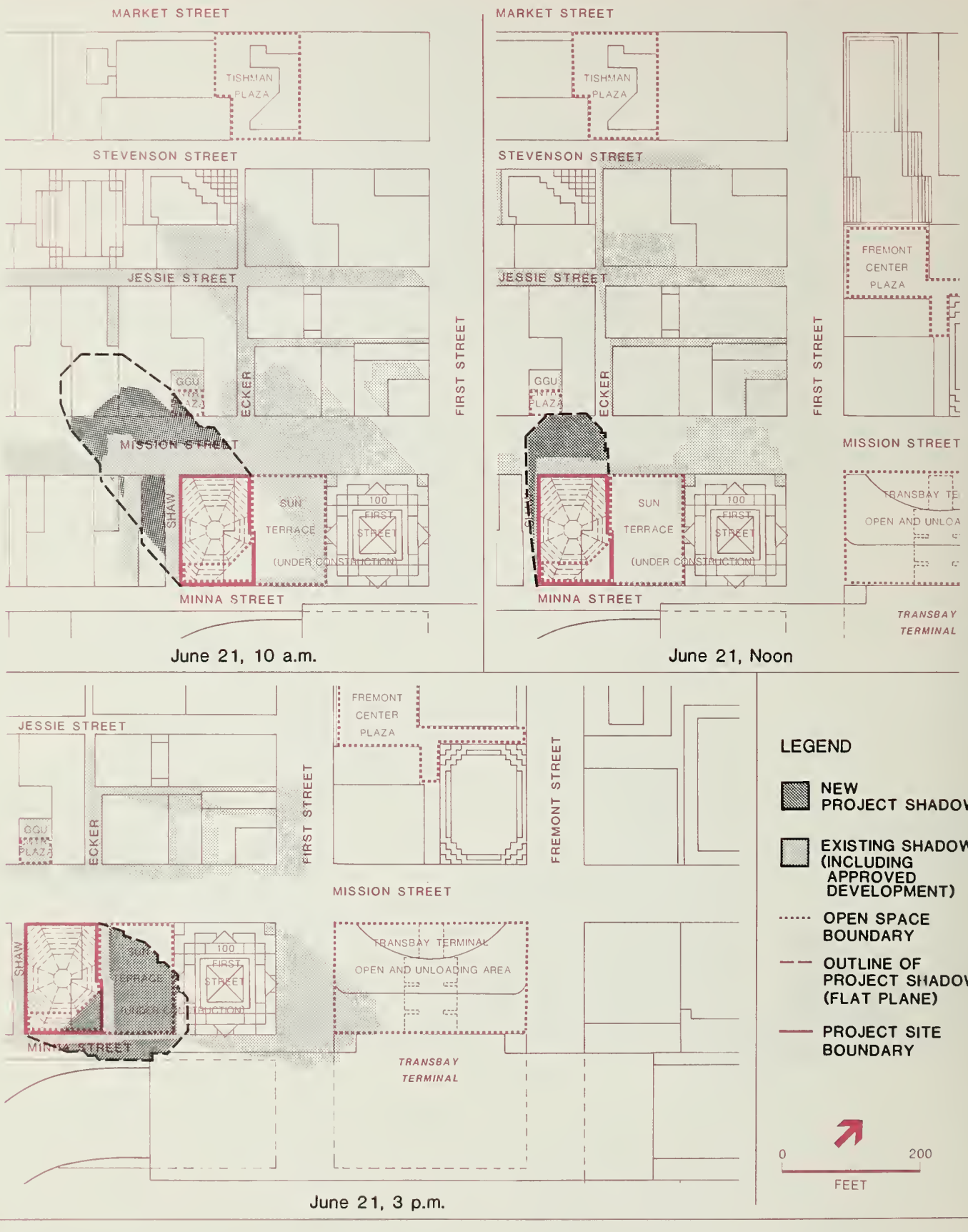


FIGURE 25: 535 MISSION
PROJECT SHADOW PATTERN- JUNE 21
(10 a.m., Noon, 3 p.m.)

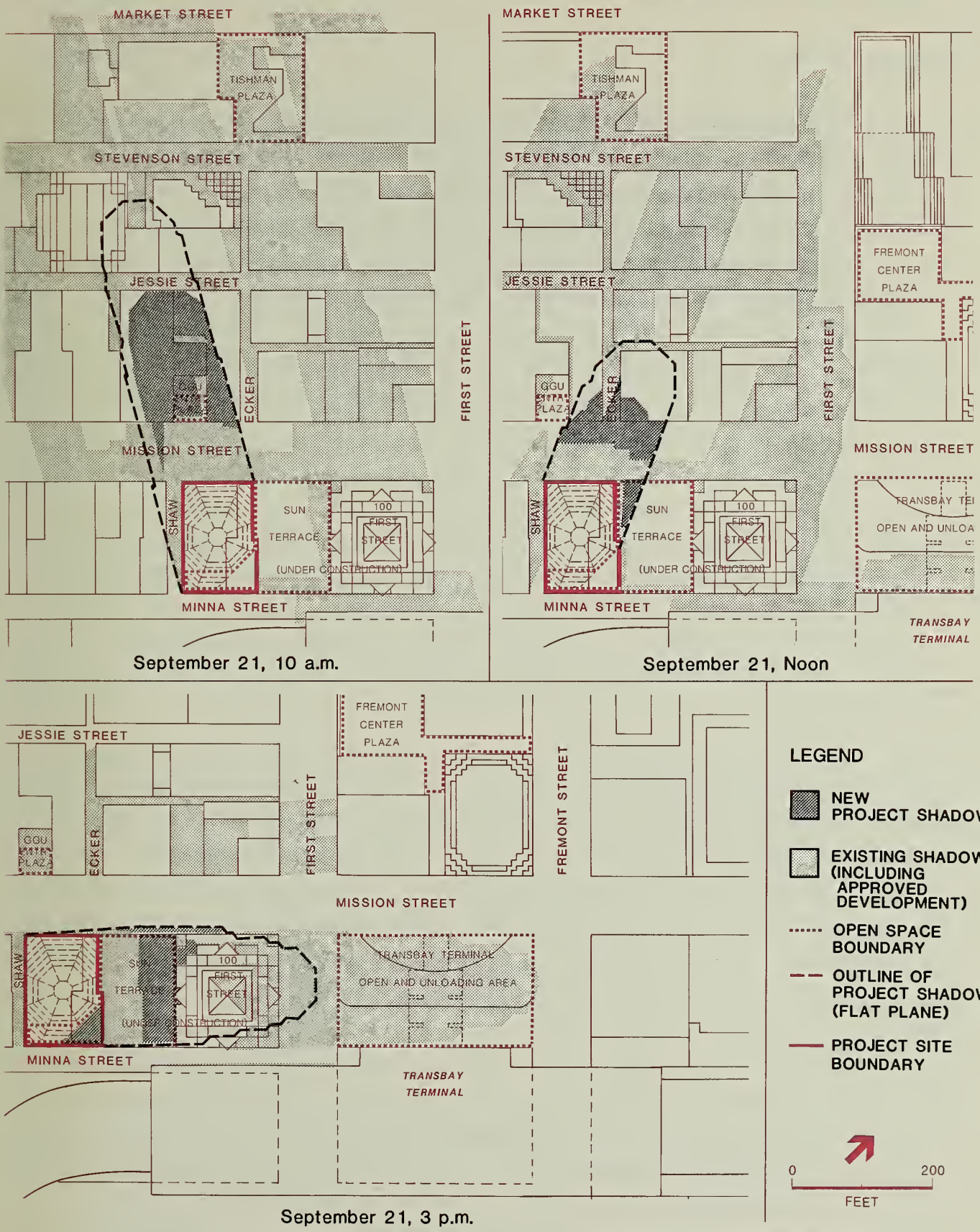


FIGURE 26: 535 MISSION PROJECT SHADOW PATTERN- SEPTEMBER 21 (10 a.m., Noon, 3 p.m.)

SOURCE: ESA

December 21st (PST)

At 10 a.m. on December 21st (see Figure 23), the project shadow would extend through the block on to Tishman Plaza, newly shading approximately 10% of that open space (of which about 85% is now shaded by existing buildings; the area which the project would newly shade is almost entirely stairway and planter boxes) and would newly shade about two percent of the 100 First St. sun terrace (existing shadow covers about 30%). Existing buildings shade most of the ground-level entry plaza (and upper level seating area) of Golden Gate University from 8 a.m. to 10 a.m. The project would not cast new shadow there at this time. At noon on December 21st the proposed building would shade a portion of the north side of Mission St. between Ecker and First Sts. and about 50% of the area bounded by Mission, First, and Jessie and Ecker Sts. The project would newly shade about 3% of the 100 First St. sun terrace at noon (existing shadow covers about 70%). At 3 p.m., the project would add shadows along the south side of Mission St. nearly as far as Beale St. Existing buildings shade about 100% of the 100 First St. sun terrace at 3 p.m.; the project would add no new shadow at this time. The project sun terrace would also be in shade at 3 p.m.

March 21st (PST)

At 10 a.m. on March 21st (see Figure 24), the project would add shadows along Mission St. and its sidewalks opposite the site. An easterly portion of Shaw Alley at the west end of the proposed building would also be shaded along with the western side of Ecker St. as far as Jessie St. At 10 a.m., the project would newly shade 100% of the Golden Gate University ground-level entrance plaza (and upper level seating area). By 11 a.m., the project shadow would move east and off the Golden Gate University entry area (and upper level seating area). At noon, the project would add shadows along Mission St. and its sidewalks east of Ecker St., and the southern tip of Ecker St. The project would newly shade about 20% of the 100 First St. sun terrace at noon, existing shadow covers about 15% of the terrace. At 3 p.m., the project would add shadow along the south side of Minna St. About 65% of the 100 First St. sun terrace (existing shadow covers about 30% of the sun terrace) would be newly cast in shadow by the project at 3 p.m. With existing and proposed shadow at this time, about 90% of the 100 First St. sun terrace and 100% of the project open space would be in shade.

June 21st (PDT)

At 10 a.m. on June 21st (see Figure 25), the project would add shadows along Mission St. and its sidewalks west of and opposite the site. The project would cast new shadow on about 20% of the entry plaza of Golden Gate University and 100% of its sixth floor terrace open space (outdoor seating). At noon, the project would add shadow to the north side of Mission St. and the east side of Shaw Alley in the vicinity of the project. At 3 p.m., the project would add new shadow to Minna St. east of the project as far as the 100 First St. development. The project would add new shadow to about 70% of the 100 First St. sun terrace (existing shadow covers about 10%) at 3 p.m. The project open space would be completely shaded at this time.

September 21st (PDT)

At 10 a.m. on September 21st (see Figure 26), project shadow would extend across Mission St. to Jessie St. The project would add new shadow to about 80% of the Golden Gate University entrance plaza existing shadow covers about 20% of the entry place at this time; thus, 100% of this area would be shaded. The project would add new shadow to about 25% of the sixth floor terrace open space at the University (existing shadow covers about 10%).

At noon, the project would shade Mission St. and its sidewalks opposite the site. A portion of Ecker St. north across Mission St. would also be shaded. At noon, the project would add new shadow to about 15% of the 100 First St. sun terrace (existing shadow covers about five percent). At 3 p.m., the project would add shadow to the southern Mission St. sidewalk between the project and First St. The project would add new shadow to about 50% of the 100 First St. sun terrace (existing shadow covers about 50%). The project open space would be completely shaded at this time.

Proposition K

In June, 1984, the voters of the City and County of San Francisco approved Proposition K, the Park Shadow Ban initiative ordinance prohibiting the issuance of building permits for structures that would shade property under the jurisdiction of or designated to be acquired by, the Recreation and Park Commission unless the City Planning Commission determines that such shade would have an insignificant adverse impact on the use of such property. The project would not shade any properties under the jurisdiction of the Recreation and Park Commission, those covered by Proposition K.

Open Space

The shadow studies show that the project would cast new shadows on Golden Gate University entrance plaza and upper level seating area on mornings from March to September. During March new shadows would be from 8:00 a.m. to about 11:00 a.m.; in June from about 9:00 a.m. to noon; in September from about 9:00 a.m. to noon. The maximum extent of the shadows would be during March and September (when about 1,900 sq. ft. of the entrance plaza, or 100%, would be shaded; 80% would be new shadow from the project). About 1,000 sq. ft. (about 10%) of Tishman plaza (mainly stairway and planter boxes) would be newly shaded by the project around 10 a.m. in winter months (October through February); the maximum duration of this shadow would be about one hour. The project would not cast shadow on the Transbay Terminal open area because of the intervening 100 First St. development.

The project would partially shade the 14,800 sq. ft. 100 First St. sun terrace in December from about 10 a.m. to about 3:00 p.m. casting new shadow on two percent to five percent. Existing buildings on the project site shade between 20% to 100% (3,300 sq. ft. to 14,800 sq. ft., respectively) of this sun terrace at these times in December. The maximum shading with (or without) the project would be in December from about 3 p.m. to 4 p.m., when the terrace would be almost entirely in shadow.

In March, the project would shade the 100 First St. sun terrace from about 10:30 a.m. to about 5:30 p.m. The maximum shading from the project would be from about 3 p.m. to 4 p.m., when the 100 First St. sun terrace would be almost entirely in shadow, with about 65% new shadow from the project. In September, the project's shadow patterns would be similar to those in March, except under Pacific Daylight Savings Time, shading of the 100 First St. sun terrace by the project would begin at about 11:30 p.m., and the maximum shading would occur between 4 p.m. and 5 p.m. In June, the project would shade the 100 First St. sun terrace from about 2 p.m. to about 3:30 p.m., with the maximum effect between 2 p.m. and 3 p.m., when about 80% of the terrace would be shaded, with about 70% new shadow from the project.

The diagonal cut in the project building would allow additional sunlight, which would otherwise be blocked by the building, to reach both the project open space and the 100 First St. sun terrace. The project would cast shadow on its own open space (sun terrace with amphitheater and an indoor winter garden) after about 1:00 p.m. year round. Up until about 1:00 p.m. the addition of the project sun terrace to the 100 First St. sun

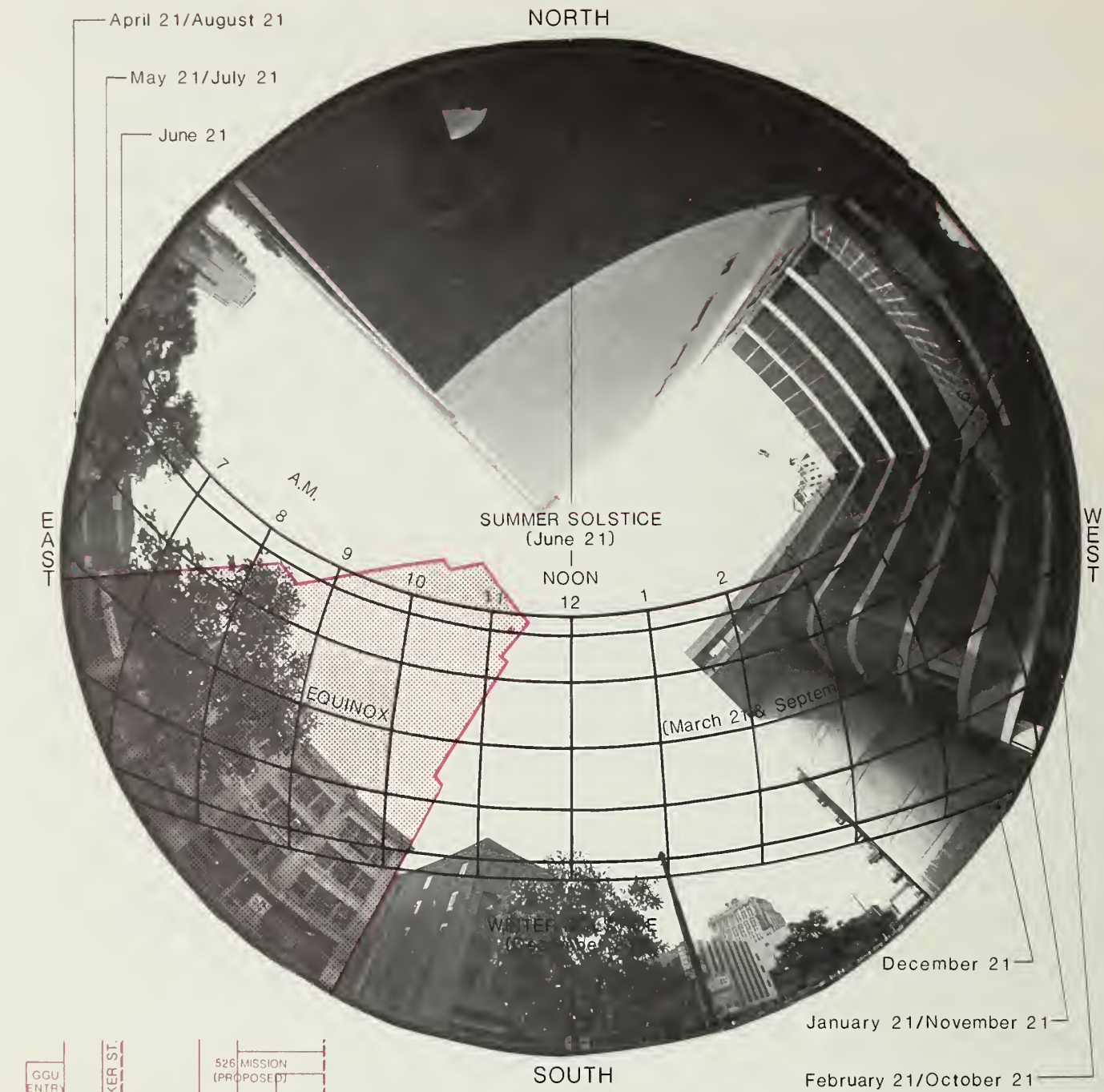
terrace would represent a net increase in open area in the sun. As the project sun terrace does not currently exist as an open area, it is not possible to analyze existing shadows.

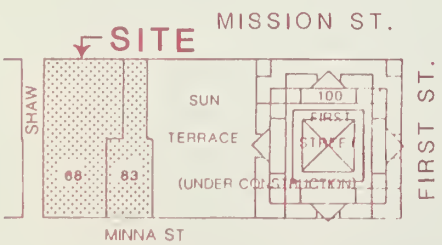
Sun Path Analysis

An analysis of sunlight duration for a location directly in front of the Golden Gate entry plaza is shown in Figure 27. A diagram of the sun's yearly path was superimposed on a fish-eye lens photograph of the sky. This diagram accurately depicts the time of day (expressed as local solar time, which is close to Pacific Standard Time; during the time that Pacific Daylight Time is in effect, the sun location would be comparable to about one hour earlier than shown), throughout the year, that direct sunlight would reach a location, but creates an exaggerated visual image due to the distortion of the fish-eye lens. This technique differs from the shadow pattern analysis in that it does not predict the extent of shadow but rather the duration of sunlight and shade at one specific location. Horizontal lines indicate a specific date in the year (June 21, May 21/July 21 etc.), vertical lines indicate time of day. At the times of day and periods of the year, indicated by the horizontal and vertical lines, that the project outline falls on the diagram, the project would cast shadows at the point where the photograph was taken. Thus, on Figure 27, for example, the project outline covers the first horizontal line (June 21) from about 9:15 a.m. to about 11:20 a.m., indicating that at the point where the photograph was taken, the project would cast a shadow on June 21, from about 9:20 a.m. to about 11:20 a.m. (local solar time). On April 21/August 21, at the point where the photograph was taken, the project would cast new shadow on that spot from about 7:30 a.m. to about 11:10 a.m. (the diagram shows that a tree currently partially shades this spot from about 6:30 a.m. to about 8:30 a.m.).

WIND/1/

Prevailing winds in San Francisco are from the northwest, west-northwest, west, and west-southwest. Wind tunnel measurements were made at 24 surface locations near the project site for each of the prevailing wind directions using a scale model of the site, the project and vicinity. The study included separate tests of northwest, west-northwest, west, and west southwest winds under existing conditions (including 100 First St., under construction); future conditions with the project in place, and future conditions with the project in place and with an extended wind screen along the south side of the project sun terrace (continuing on from the wind screen to be built on the south side of the 100 First St. sun terrace as part of that development).





● LOCATION OF PHOTO

▒ OUTLINE OF PROJECT

SOURCE: ESA

FIGURE 27: 535 MISSION SUN PATH ANALYSIS

Wind test data were combined with wind records to predict the winds speeds that would be exceeded 10% of the time at each test location. The predicted winds were then compared to the comfort and hazard criteria in the Planning Code, established in the Downtown Plan. (See Appendix B, p. A-28 for a summary of the full wind analysis.) Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time./2/

Existing winds in the project vicinity range from three mph to eight mph (see Appendix B, Figure B-1, p. A-31). Existing winds do not exceed the applicable comfort criterion at any location.

The project would result in winds of four mph to nine mph. The project would cause winds to decrease at five of the 24 locations (by one mph). Winds would be unchanged at three locations and would be increased at 15 locations (by between one and three mph). One location (on the project sun terrace) does not currently exist so could not be tested under the existing scenario. (See Appendix B, Figure B-1, p. A-31.) Winds with the project would not exceed the applicable comfort criterion at any location tested.

NOTES - Shadow and Wind

/1/ This section is based on a study entitled Wind Tunnel Study of the 535 Mission Street Building project, March 1986, prepared by Dr. Bruce White for Environmental Science Associates, Inc. A summary of the report is included in Appendix B, p. A-28; the complete report is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

/2/ Equivalent windspeed is an hourly wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.

D. CULTURAL RESOURCES

An archaeological resources report titled "Cultural Resources Evaluation of Five South of Market Parcels" was prepared for five development proposals in the project area (100 First St., 524 Howard St., 535 Mission St., One Second St., and 201 Second St.) including the project, by Allen G. Patron, consulting archaeologist, and is on file with the Office of Environmental Review, Department of City Planning, 450 McAllister St.

The earliest recorded history in the vicinity of this site dates from the Gold Rush Period. The 1852 U.S. Coast Survey Chart shows two structures within the project site. It is probable that some of the earliest structures built South of Market were on or near the

site, and the investigation suggests the presence of significant cultural resources on the site dating from the Gold Rush. Artifacts would be expected to be encountered from City Building and Late Nineteenth periods, also. The buildings on the site date from the Twentieth Century Period. The proposed project would probably include excavation to about one ft. below the existing basements. Piles would be driven into dense sands below the basement level to a depth of about 80 ft.

Pile driving for the proposed project might intrude upon any cultural artifacts and might damage the resource irretrievably. Further investigation would be needed to determine the existence of and means for preserving or removing any artifacts intact.

E. TRANSPORTATION

The analysis below includes a brief summary (summaries) of the materials in the Downtown Plan EIR. This summarized material is incorporated by reference as follows:

VOLUME 1: FINAL EIR TEXT.

I. SUMMARY. E. Transportation and Circulation; Travel Demand, Public Transportation, Traffic, Parking, Pedestrian Circulation, Mitigation (pp. I.E.1-I.E.6).

IV. ENVIRONMENTAL SETTING AND IMPACTS OF THE DOWNTOWN PLAN. E. Transportation and Circulation; Introduction (pp. IV.E.1-IV.E.3); Setting (pp. IV.E.3-IV.E.20): Travel Demand Analysis, Transit, Traffic, Parking, Pedestrian Circulation; Impacts (pp. IV.E.20-IV.E.47): Travel Demand Analysis - 1990 Impacts, 2000 Impacts; Transit - 1990 Impacts, 2000 Impacts; Traffic - 1990 Impacts, 2000 Impacts; Parking - 1990 Impacts, 2000 Impacts; Pedestrian Circulation - 1990 Impacts, 2000 Impacts.

V. MITIGATION OF ENVIRONMENTAL IMPACTS (pp. V.E.1-V.E.30). E. Transportation and Circulation: Annual Growth Rate Limits, Measures Proposed as Part of the Downtown Plan.

VI. ALTERNATIVES (pp. VII.E.1-VII.E.4). E. Transportation and Circulation: Travel Demand, Public Transportation, Traffic, Parking, Pedestrian Circulation.

VOLUME 2: APPENDICES (pp. J.1-J.38). J. Transportation and Circulation Analyses and Methodologies: Introduction, C-3 District Employer/Employee Survey Travel Demand Analysis, Future Transit Capacities, Service Vehicles, Pedestrian Circulation.

VOLUME 3: SUMMARY OF COMMENTS AND RESPONSES (pp. C&R 1-Z.4). Part 1: Responses.

The Downtown Plan EIR (Final EIR, EE81.3, certified October 18, 1984) is available for review at the Department of City Planning, the San Francisco Main Public Library, and various branch libraries.

DEMOLITION, EXCAVATION, AND CONSTRUCTION TRAFFIC/1/

During the projected 24-month construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation, and construction activity. Demolition would require about two months and would generate an average of 25 truck movements per day in or out of the project site, between 9 a.m. and 3:30 p.m. Excavation would require about three months and would generate an average of 15 truck movements per day in or out of the project site, between 9 a.m. and 3:30 p.m. Trucks would use the First St. on-ramp to reach the freeway to haul debris and excavation materials to a disposal site in South San Francisco. Construction activities (steel erection and finishing) would generate an average of five truck movements per day during the remaining 19-month period. Deliveries of materials would occur between 9 a.m. and 3:30 p.m.

Primary construction truck access to the site is proposed to be from Mission St. with secondary access from Minna St. During the construction period, the sidewalks fronting the project site on Mission, Shaw and Minna Sts. would most likely be closed, and the curb lane on Mission St. would need to be closed to provide a pedestrian detour. Closure of the curb lane on Mission St. would displace two parking spaces and a loading zone. It would also result in a reduction of capacity on Mission St. (There is a no-stopping restriction on the south side of Mission St. between 7 a.m. and 9 a.m. and 4 p.m. and 6 p.m.) Lane and sidewalk closures are subject to review and approval by the Department of Public Works. Materials storage is proposed to be off-site, and would generate construction vehicle trips to the site; these trips are included in the above projections. Temporary parking demand from construction workers' vehicles, and impacts on local intersections from construction worker traffic, would occur in proportion to the number of construction workers who

would use automobiles. The location of the site one-half block from the Transbay Transit Terminal with convenient access to Muni, AC Transit, SamTrans, and Golden Gate Transit could result in fewer construction workers driving to the site; parking demand generated by construction workers would thus most likely be less than at other sites in the downtown.

The impact of construction truck traffic would be a slight lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii of trucks. Lane blockage on Mission St. by queued trucks, if it were to occur, would reduce the capacity of this street and would interfere with the operation of the diamond transit lane. The following Muni lines could be affected: 13-Guerrero, 12-Folsom, 15-Third, 14-Mission and 14-X-Mission Express; Samtrans lines and jitneys could also be affected. Blockage during times of peak traffic flow would have greater potential to create conflicts than during nonpeak hours because of the greater peak-hour numbers of vehicles in adjacent lanes and vehicles (autos and buses) that would have to maneuver around the queued trucks. Any truck traffic from 7 a.m. to 9 a.m. or from 4 p.m. to 6 p.m. would coincide with peak-hour traffic, and would serve to worsen service levels. As noted above, truck traffic would be restricted to the hours of 9 a.m. to 3 p.m. which would avoid such peak period effects. If construction of 100 First St. or 526 Mission St. were to occur concurrently with construction of the proposed project, congestion on Mission and Minna Sts. would be increased. 100 First St. is presently under construction and 526 Mission undergoing preliminary environmental review.

PROJECT IMPACTS

Travel Demand

On the basis of land use, the project would generate about 2,090 net new person trip-ends (pte) per day./2/ Travel generated by existing office and retail uses on the project site (about 1,890 pte per day) has been subtracted from the total new travel (about 3,980 pte per day) from the site to give the net new travel from the project./3/ The trip generation calculations include travel to and from the project site by both visitors and employees of the project. Additionally, although expressed on a person trip-end basis, the trip generation include all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (i.e., walking, bicycles, taxis, etc.). Projected outbound

(peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 4, below. About 490 new outbound trips from the project would occur during the p.m. peak-period, of which about 310 would occur in the p.m. peak hour./4/

TABLE 4: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM 535 MISSION STREET (pte)/a/

Travel Mode	P.M. Peak Period/b/ 1984	P.M. Peak Period/b/ 2000/c/	P.M. Peak Hour /b/ 1984	P.M. Peak Hour /b/ 2000/c/
Drive Alone	100	85	65	55
Car/Vanpool	110	110	80	80
Muni	170	155	85	80
BART	100	125	65	80
AC Transit	40	40	25	25
SamTrans	10	10	5	5
SPRR (Caltrain)	10	10	10	10
GGT Bus	25	30	20	20
Ferry	5	5	5	5
Walk Only	-90 /d/	-90 /d/	-60 /d/	-60 /d/
Other	10	10	10	10
TOTALS (rounded)	490	490	310	310

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4 to 6 p.m.
/c/ The year 2000 modal split accounts for changes in travel behavior which are assumed to occur as a result of growth in downtown San Francisco.
/d/ The net decrease in retail space on the project site would reduce the number of peak-period and peak-hour pedestrian trips at the site.

SOURCE: Environmental Science Associates, Inc.

Assignments to travel modes for the project have been made on the basis of modal splits from the Downtown Plan EIR (EE 81.3) for the years 1984 and 2000./5/ The 1984 modal split has been used for the purpose of identifying impacts at the single-project level (as opposed to impacts at the cumulative level). The year 2000 modal splits have been applied to the project travel for the purpose of comparing project travel with cumulative future travel demand on the transportation systems serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because

the travel demand forecasts used to derive the average modal split data implicitly include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

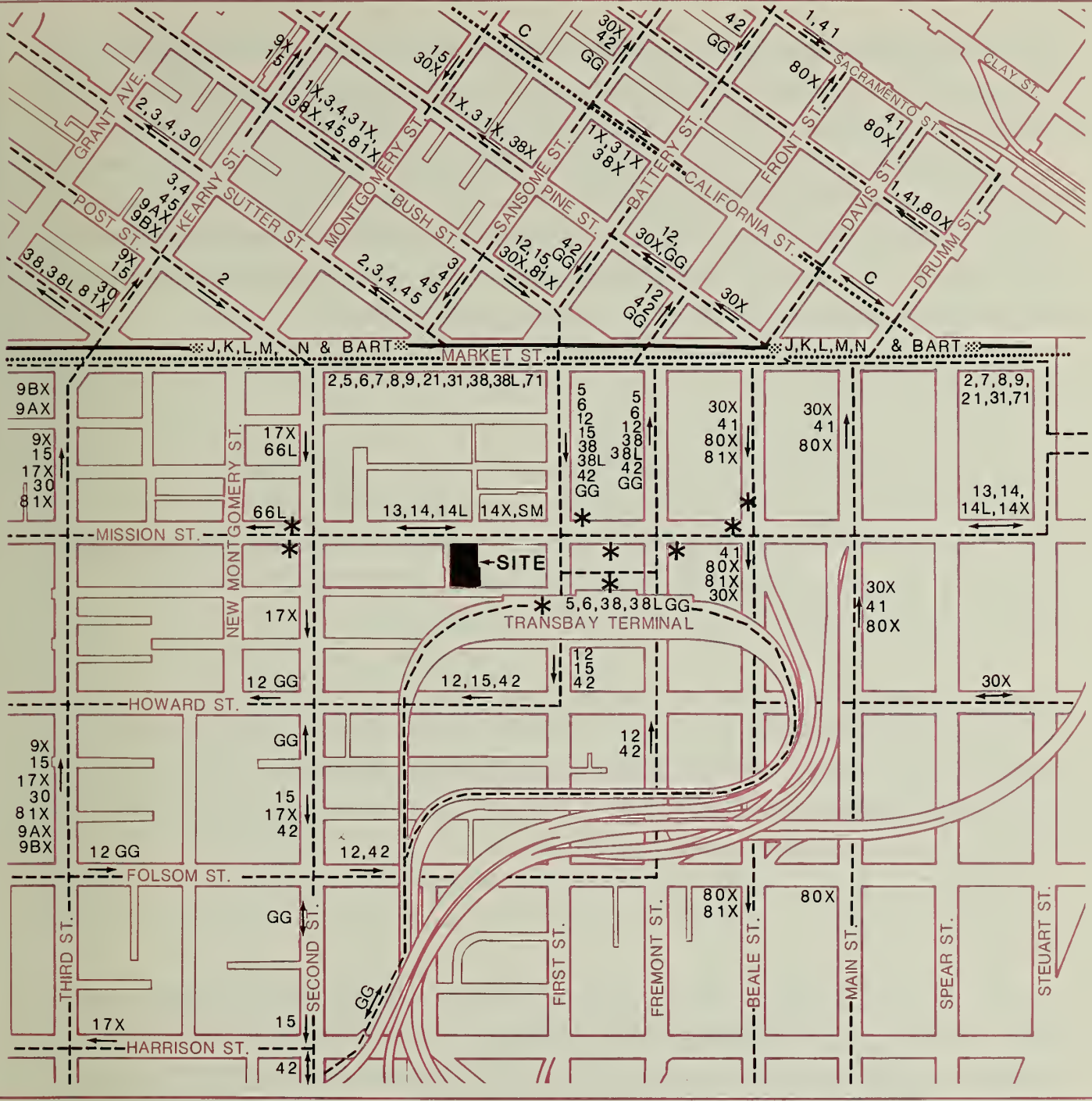
Parking demand was projected for the 535 Mission St. project on the basis of the estimated vehicle traffic generated by the project. The project's land uses would create net new demand for about 195 long-term spaces and, as there is a net decrease in retail space, the project would decrease the demand for short-term parking by about five spaces. This would result in a total net new demand for 190 spaces. As the project would provide 40 parking spaces, the equivalent net new daily off-site demand would be for 150 parking spaces.

The project would respond to Objective 1, Policy 7 of the Transportation Element of the San Francisco Master Plan, to "seek means to reduce peak travel demand."/6/ As required by Section 163 of the City Planning Code, a member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information.

Local Transit

The project site is one-half block from the Transbay Transit Terminal; 14 Muni routes stop either on First St. (just southeast of the project site) or on Mission St. in front of the Terminal. Muni Metro and BART service in the Market St. subway are accessible via the Montgomery St. station (one block north of the site). Figure 28, p. 99, shows transit routes in the project area. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix D, Figures D-1, pp. A-37 to A-39.

During the p.m. peak hour in 1984, all of the transit agencies were found to be operating in Level of Service D or better, with the exception of BART Transbay where conditions were found to be at Level of Service F, and MUNI in the northwest and southwest corridors, where operations were found to be in LOS E. Table D-1, Appendix D, p. A-36,



LEGEND:

- BART AND MUNI METRO STATION
- BART ROUTE
- MUNI METRO ROUTE
- BUS ROUTE
- CABLE CAR ROUTE
- 2,30,J,K ROUTE DESIGNATION
- ROUTE DIRECTION
- * BUS STOP (WITHIN ABOUT ONE BLOCK OF SITE)
- SM SAMTRANS
- GG GOLDEN GATE TRANSIT

NOTE: Jitneys also operate along Mission St.

SOURCE: MUNI, SAN FRANCISCO STREET & TRANSIT MAP, MARCH 1986

0 500 FEET

FIGURE 28: 535 MISSION TRANSIT ROUTES IN THE PROJECT AREA

contains descriptions of the various Levels of Service for bus transit. In the p.m. peak hour, the project would generate about 85 new Muni trips and about 65 new BART trips outbound from the project site. Addition of the project p.m. peak-hour Muni riders to the existing (1984) Muni ridership would not increase the loading ratios on any corridors, and thus would not change the Levels of Service. The number of Muni riders from the project would not be sufficient to affect Muni operations in any of the four corridors. Addition of BART riders from the project to the existing BART ridership would not increase p.m. peak hour transbay or westbay loading ratios or change Levels of Service.

Transit Corridor Analysis

The project would contribute to increases in transit ridership in the major transit corridors leading from downtown San Francisco. Existing peak-period and peak-hour transit ridership would be increased by about 0.2%. A ridership increase of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership and would not have a noticeable effect on transit levels of service.

Cumulative development under the Downtown Plan to the year 2000 in conjunction with planned capacity increases of transit carries would be expected to cause the following changes in transit Levels of Service during the peak period: Muni Northwest Corridor, E to D; BART Transbay, F to E; AC Transit, C to D; Golden Gate Ferry, B to A; Tiburon Ferry, A to B; and Caltrain, B to C.

Project Transit Costs

Muni. The estimated 1981-82 (most recent available) net marginal cost (or increase in the deficit for Muni operations) per additional ride is $0.50./7/ This deficit-per-ride figure, because it is a marginal cost, is appropriate for small increases in Muni ridership (such as that requiring one or a few additional vehicle trips). Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average costs./8/ It is reasonable to conclude that average costs would be significantly higher than marginal costs.

The project would generate about 78,100 peak-period, peak direction rides per year in the year 2000, which would generate a cost deficit to Muni of about $39,060, assuming that the cost per ride deficit remains the same./9/ (This conclusion should be qualified

because the Muni deficit-per-passenger-trip figure is based on 1981-82 data, and because the total project-generated deficit is calculated only for those riders who use Muni as their primary mode of transportation, excluding riders who would use a combination of transportation carriers, such as Muni and Caltrain. More recent data that would allow a more precise estimate of costs are not available.) The project would offset this deficit through its contributions to the General Fund, the Transit Impact Development Fee, and sales tax revenues.

On April 27, 1981, the San Francisco Board of Supervisors approved Ordinance 224-81 establishing the Transit Impact Development Fee (TIDF) to support additional operating costs and capital improvements for Muni transit services associated with new downtown commercial development. The ordinance established a one-time fee of up to $5.00 per gross square foot due upon occupancy of new office space within the greater downtown area of San Francisco; the 535 Mission St. project is located within the fee assessment area. The TIDF ordinance has been in litigation almost since its inception. On January 4, 1985, the San Francisco Superior Court issued a decision upholding the ordinance. On March 12, 1985, the plaintiffs, a group of downtown property owners, appealed. Money is being collected by the City pursuant to the ordinance, and deposited in an escrow account, pending resolution of the litigation. Under the ordinance, the project would generate about $1.25 million in one-time fee revenues to Muni. The fee is intended to recover additional transit costs for the entire economic life of a building, and thus cannot be compared directly to the annual Muni deficit discussed above. However, the fees collected under the ordinance would reduce the amount of General Fund revenue support necessary for existing and future Muni operations.

The project would also offset the Muni annual operating deficit attributable to the project through its contributions to General Fund revenues, which would be derived from a variety of taxes levied on the proposed project. In the past, a portion of General Fund revenues have been allocated to Muni. The historical level of contribution of General Fund revenues to Muni could change, however, if the Transit Impact Development Fee is upheld. Because of the variable relationship of the sources from which Muni receives operating funds, the annual General Fund contribution from the project to Muni cannot be quantified.

General Objective 1, Policy 6 of the Transportation Element states as a goal to "develop a financing system for transportation in which funds may be allocated without unnecessary

restriction for priority improvements according to established policies." (p. 10) The project sponsor has agreed to participate in legally adopted funding measures for downtown transit funding, proportional to demand created by the project.

BART. For the year ending June 30, 1985, the average net operating deficit per passenger trip for BART was about $1.20./10/ On the basis of about 155,990 rides per year in the year 2000, the estimated annual BART deficit attributable to the project would be about $187,200, assuming that the cost per ride deficit is the same./11/ The project would generate a total of about $9,630 in revenues to BART, including about $4,180 in property tax revenues, and about $5,450 from the 75% of the 0.5% transit sales tax allocated to BART. This amount does not include the remaining 25% of the 0.5% BART sales tax revenue distributed by MTC among BART, Muni and AC Transit. After subtraction of BART's revenues from sales and property taxes that would be generated by the project, the net operating deficit of BART due to the project would be about $176,600. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Pedestrian Movements

The primary entrance to the building on Mission St. would provide access to the lobby, where elevators serving upper office floors would be located. Entrances to ground-floor retail space would also be provided from Mission St.

The project at full occupancy would generate about 90 new pedestrian trips on sidewalks and crosswalks in the vicinity of the site during the 15-minute peak-period of the noon hour, and about 60 new pedestrian trips during the p.m. 15-minute period. Pedestrian travel destinations were estimated on the basis of projected major travel modes. Pedestrian trips were assigned to sidewalks and crosswalks on the basis of these destinations.

Operating conditions on sidewalks and crosswalks have been evaluated in terms of pedestrian flow categories or regimen, which relate the density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to the quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk)./12/ Appendix D, Table D-2, p. A-40 shows the relationships among flow rates, walking speed, path choice, and interaction among pedestrians for each flow regime.

Appendix D, Figure D-2, pp. A-41 to A-42, shows photographs of sidewalk conditions for each flow regime. Typically, an upper limit for desirable conditions is 14 pedestrians per foot per minute (p/f/m), defined as crowded, although conditions as high as 18 p/f/m, a congested condition in which pedestrians are subjected to extreme crowding, have been documented./12/

Table 5, p. 104, summarizes pedestrian flow conditions on sidewalks and crosswalks adjacent to the site and at the intersection of First and Mission Sts. These sidewalks and crosswalks currently operate in unimpeded and impeded conditions during both the noon-peak 15-minute period and 15-minute p.m. peak period (in the project vicinity, p.m. peak period pedestrian volumes are generally heavier than in the noon peak)./13/ Conditions on these sidewalks and crosswalks following addition of the project pedestrian travel to existing (1984) volumes would be the same as at present except for the Mission St. sidewalk and the crosswalk across First St. during the noon 15-minute peak. Conditions on this sidewalk and crosswalk would worsen from unimpeded to impeded. While these conditions would be in the impeded range, as noted, there would continue to be adequate facilities for pedestrians on the sidewalks and crosswalks adjacent to the project site.

The project would have a 22-ft. curb-cut for the off-street loading docks and a separate 15-ft. curb-cut for the ramp leading to the project garage located on Minna St. The potential for pedestrian-vehicle conflicts would be increased by the service-vehicle traffic using the off-street loading spaces and vehicles using the 40 parking spaces from the project crossing the Minna St. sidewalk. Pedestrian volumes on Minna St. are low, so the impact of vehicle and service-vehicle traffic would be less than on Mission St.

In the year 2000, during the noon peak, all of the sidewalks and crosswalks studied in the project vicinity would operate in the impeded range (see Table 5). Conditions would worsen from unimpeded to impeded at the First St. sidewalk during the noon 15-minute period. The project pedestrian traffic would represent about 22% and three percent of the pedestrian volumes on the Mission St. and First St. sidewalks, respectively, and about 13% and seven percent of the pedestrian volumes on the crosswalks across Mission St. and First St., respectively, during the noon hour. The project could cause existing conditions to change at two of the four locations studied, the Mission St. sidewalk and the crosswalk across First St. (from unimpeded to impeded) in the noon hour peak (not in the p.m. peak hour, however).

TABLE 5: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN (project side of street)

	Total Width (feet)	Effective Width (feet)/a/	Existing p/f/m/b/	Existing Flow Regimen/c/	Existing Plus Project p/f/m	Existing Plus Project Flow Regimen	2000/e/ p/f/m	2000/e/ Flow Regimen	Project Percent
NOON PEAK /d/									
Mission Street sidewalk	15.0	9.5	1.5	Unimpeded	2.1	Impeded	2.6	Impeded	22 %
First Street sidewalk	15.0	9.8	2.0	Unimpeded	2.0	Unimpeded	2.7	Impeded	3 %
Crosswalk across Mission Street	14.8	14.8	3.0	Impeded	3.5	Impeded	4.4	Impeded	13 %
Crosswalk across First Street	14.6	14.6	2.0	Unimpeded	2.2	Impeded	2.8	Impeded	7 %
P.M. PEAK/d/									
Mission Street sidewalk	15.0	9.5	1.4	Unimpeded	1.8	Unimpeded	2.2	Impeded	18 %
First Street sidewalk	15.0	9.8	2.3	Impeded	2.4	Impeded	3.1	Impeded	2 %
Crosswalk across Mission Street	14.8	14.8	4.6	Impeded	4.9	Impeded	6.3	Constrained	14 %
Crosswalk across First Street	14.6	14.6	3.0	Impeded	3.2	Impeded	4.2	Impeded	7 %

/a/ The effective width is the narrowest portion of the sidewalk and is calculated by subtracting the space taken by poles, planter boxes, people standing at windows, etc., from the total width.
/b/ Pedestrians per foot of effective sidewalk width per minute.
/c/ See Table D-2 and Figure D-2, Appendix D, pp. A-40 to A-42, for descriptions of pedestrian flow regimens.
/d/ Peak 15-minute periods.
/e/ Calculated using existing sidewalk widths.

SOURCE: Environmental Science Associates, Inc.

P.M. peak-hour operations in the year 2000 would be in the impeded range with the exception of the Mission St. crosswalk, which would operate at the lower end of constrained conditions. The Mission St. sidewalk would worsen from unimpeded to impeded conditions during the p.m. peak 15-minute period, and conditions would worsen from impeded to constrained at the crosswalk across Mission St. during the p.m. peak 15-minute period.

Project pedestrian traffic during the p.m. peak hour would represent about 18% and two percent of the pedestrian volumes on the Mission St. and First St. sidewalks, respectively. About 14% and 7% of the p.m. peak-hour crosswalk pedestrian volumes across Mission St. and First St., respectively, would be from the project. See Table 5 for specific changes. While conditions would be in the impeded and constrained ranges, there would continue to be adequate facilities for pedestrians (see discussion above and Table D-2, Appendix D, p. A-40).

A pedestrian bridge is proposed from the Fremont Center across Mission St. to the Transbay Transit Terminal, to allow Terminal commuters to cross Mission St. without conflicting with vehicle traffic. The bridge would most likely reduce some of the pedestrian volumes crossing Mission and First Sts. As the conditions shown in Table 6, below, are calculated on the basis of the existing pedestrian network, any decrease in crossing volumes as a result of a pedestrian bridge would result in better conditions than those shown in Table 6. The status of the bridge, to be built by CalTrans, is uncertain at this time.

TABLE 6: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

	1984		1984 + Project		Downtown Plan (2000)	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS
Beale & Mission Sts.	0.92	E	0.93	E	1.05	F
First & Harrison Sts.	1.11	F	1.12	F	1.34	F
First & Mission Sts.	0.82	D	0.83	D	0.88	D

/a/ Level of Service descriptions and relationship to V/C ratios are shown in Table D-3, p. A-44 of Appendix D.

SOURCE: Environmental Science Associates, Inc.

Local Intersection Traffic

The project would provide about 40 valet parking spaces in the basement of the new building with access from Minna St. Project-related parking, loading and service vehicle traffic would result in incremental increases in traffic at intersections near the site. The intersection of First and Mission Sts. presently operates at LOS D during the p.m. peak-hour (see Table 6, p. 105), representing fair conditions./14/ Assuming that all 40 parking spaces turnover during the p.m. peak-hour and assuming all 40 vehicles using those spaces go through the intersection of First and Mission Sts., the volume-to-capacity ratio would increase but the LOS would remain the same. It is unlikely that all 40 cars would go through the First and Mission Sts. intersection (this would represent the conservative case); it is more likely that this traffic would take several different routes. In the year 2000 (with or without the project), the intersection of First and Mission Sts. would continue to operate at LOS D.

Some of the traffic from the project would turn right on First St. (from Mission St.) to reach the freeway ramps at First and Harrison Sts. and some would proceed straight through (on Missions St.) to the freeway ramps at Beale and Mission Sts. Increases in traffic on First St. would make it more difficult for Muni coaches, on the 12-Folsom and 15-Third lines, to turn right from First St. to Howard St. during the p.m. peak period.

Freeway On-Ramp Analysis

Traffic operations at intersections serving freeway on-ramps near the project site are also shown in Table 6. Level of Service descriptions are shown in Table D-3 and D-4, Appendix D, pp. A-44 and A-45. The project would incrementally contribute to traffic at freeway on-ramps during the p.m. peak-hour. The intersection of Mission and Beale Sts. currently operates in Level of Service E conditions during the p.m. peak hour. The intersection of First and Harrison Sts. currently has Level of Service F conditions during the p.m. peak hour. Operations at Levels of Service E and F represent unacceptable delay to motorists. Queues of vehicles are present during the p.m. peak hour on the approaches to the on-ramp at First and Harrison Sts. Vehicles from the project would be expected to contribute to the existing jammed conditions at this intersection. Project effects at the Mission and Beale intersection would not be sufficient to change the LOS during the p.m. peak hour; however, the volume-to-capacity ratio would increase slightly (as shown in Table 6).

Project traffic alone would not change the LOS at any freeway on-ramps. For the year 2000 projections, 1984 traffic volumes were increased by a 19% average growth factor based on the Downtown Plan EIR traffic analysis. The growth factor represents a worst-case, unrestrained auto demand condition for street traffic in the downtown and, as such, is probably higher than actual traffic growth may be in the future in the downtown. Motorists confronted with increased delays on surface streets could alter their travel patterns to use less congested routes (to the freeway ramps) or to travel at different time (to avoid periods of traffic congestion). The intersections of Mission and Beale Sts. and First and Harrison Sts. are at Level of Service E and F, respectively, during the p.m. peak hour. Peak-hour conditions would be expected to deteriorate at both of the intersections by the year 2000 as shown in Table 6. Expanded areas of traffic congestion would disrupt surface Muni operations.

Muni operations would be adversely affected by increased congestion. Operation of Muni surface transit routes through the congested areas would be impeded; this would lead to decreased levels of Muni service since scheduled headways would not be met.

Freeway Corridor Analysis

The project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period. The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours adjacent to the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the year 2000) or ridesharing incentives be provided.

Traffic generated by the project would increase total traffic on major freeways during the p.m. peak period and the p.m. peak-hour by about 0.1%. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes. Because the Bay Bridge p.m. peak-hour eastbound traffic flow is functionally at capacity, the travel demand from the project would not be expected to increase the flows on the Bay Bridge in the peak-hour; rather the East-Bay-bound auto traffic from the project would most likely compete with and possibly displace existing users of the Bay Bridge into later portions of the peak period. This competition for access would occur at the on-ramps to the Bay Bridge and any displacement of existing users to later time periods would depend on the

time of arrival of project vehicles at the on-ramps. Some drivers would shift to carpools or transit as a result of cumulative displacement.

OFF-STREET PARKING AND LOADING REQUIREMENTS AND DEMAND

Parking

The project would create net new long-term parking demand for about 195 long-term spaces and would decrease the net demand for short-term parking by five spaces for a total net new demand of 190 equivalent daily spaces. The project would provide 40 valet (all short-term) parking spaces, resulting in an unmet demand of about 150 equivalent daily spaces (190 - 40 = 150).

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District. The short-term parking demand, while representing about 25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about 10% of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

The Downtown Plan discourages "new long-term spaces in and around the downtown" (p. 126 of the Downtown Plan). The project would add 40 valet parking spaces which would be for short term use. Parking spaces would be controlled to assure priority for vehicles driven by the physically handicaped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. The parking rates would be structured to favor short-term parking (see mitigation measure p. 131).

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent about 0.3% of the total demand from the C-3 District. As noted in the Downtown Plan EIR, the parking supply in the year 2000 has been assumed to increase to about 51,000 spaces. There would be a parking deficit of

about 6,000 spaces in that year if vehicular demand occurs as projected. However, the analysis for the year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing; then the overall parking demand would decrease from the above estimate by about 2,300 spaces.

If the Goals of the Downtown Plan are met, total parking demand in the year 2000 would be about 48,100 equivalent daily spaces, an increase of 6% over 1984. If the Goals were achieved, there would not be a parking deficit.

As required by the City Planning Code, one space in the parking garage would be for handicapped parking. Additionally, all remaining parking spaces would be subject to rates that encourage short-term use and discourage all-day parking; the parking rate schedule would be reviewed and approved by the Department of City Planning, or alternatively, the project sponsor would agree to be bound by a formula, to be developed by the Department of City Planning, which structures rates to favor short-term parking. The project sponsor would also be required to provide two bicycle storage spaces in the parking garage.

Loading

Table 7, p. 110, shows total service vehicle travel and average hourly service-vehicle demand for the project, based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement./15/ The new building would generate about 56 service vehicle stops per day. Average hourly loading space needs are given in terms of spaces per hour per 10,000 gsf of building space; average demand for the project would be about 2.7 spaces per hour and peak hourly demand would be 3.4 spaces.

Under the City Planning Code, the project would be required to provide three loading docks to serve the 255,010 gsf of office space (0.1 spaces per 10,000 gsf = 2.6 spaces for 255,010 gsf of office space). Retail use in the project would not be of sufficient size to require additional loading facilities. The Code allows the substitution of two service vehicle spaces for each loading space, provided that at least one-half the required number of spaces are provided for trucks.

Two loading spaces would be located on Minna St. with a total curb cut of about 22 ft. One loading dock would be about 40 ft. deep and the other would be about 30 ft. deep. Two service vehicle loading spaces would be located in the basement with access from the

parking ramp (a sign would direct service vehicles into the basement). The sponsor would ensure that valet parking did not block or hinder service vehicle access to the basement. The number of loading spaces and their depths and dimensions would conform to requirements as specified in Section 154(b) of the City Planning Code. Section 155(d) of the Code allows up to four freight loading and service vehicle spaces to be individually accessible directly from a service street or alley such as Minna Street. The project would have two such spaces. Proposed curb cuts for the loading area and the parking ramp would meet be Department of Public Works standards (as described in order No. 62850) that permit maximum curb cuts of 30 ft. and minimum separation distances of 20 ft. between adjacent curb cuts.

TABLE 7: PROJECTED SERVICE-VEHICLE TRAVEL ATTRIBUTABLE TO THE PROJECT/a/

Use	Space (GSF)/b/	Daily Stops/ 10,000 sq. ft. of GSF/b/	Daily Stops	Spaces/Hour/ 10,000 sq. ft. of GSF/b/	Average Spaces/ Hour
Office	255,010	2.1	54	0.1	2.6
Retail	5,000	3.0	2	0.2	0.1
TOTALS			56		2.7

/a/ Service-vehicle travel has been included in total travel calculated for the project.
/b/ Gross square feet of floor space.

SOURCES: Environmental Science Associates, Inc.; Department of City Planning, 1980, Center City Circulation Program, and City Planning Code.

Analysis of the design of the proposed Minna St. loading/service area indicates that standard single-unit trucks would be able to enter the loading area by backing in from a westbound position on Minna Street, as required by Department of Public Works standards. The loading area would connect with the elevator banks to the office floors. Building directories and signs for the service elevators would be placed in the loading area.

The project would include on-site storage for trash containers. Containers would not be placed on streets or sidewalks except during actual trash pickup. The project could provide containers to collect and store recyclable solid waste (such as glass, metal, computer cards, and newspaper) and the project sponsor could contract for recycling service; the project sponsor is considering these features for the project.

NOTES - Transportation

/1/ Richard Leicher, Dinwiddie Construction Company, letter, March 12, 1986.

/2/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The calculations for this project have not been discounted to account for linked trips and thus present a "worst-case" scenario. The September 1983 Transportation Guidelines are on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., 6th Floor.

/3/ Deduction of existing travel demand is per the Transportation Guidelines.

/4/ The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines. Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area in the peak commute direction) travel. The outbound travel consists of all of the work-related travel and one-half of the other (non-work) travel.

/5/ San Francisco Department of City Planning, Office of Environmental Review, Environmental Impact Report for The Downtown Plan, EE81.3, certified October 18, 1984. This document is an analysis of projected growth in the C-3 Districts to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period, peak hour, and daily time periods. This document is on file with and available for public review at the Department of City Planning, 450 McAllister Street.

/6/ San Francisco Department of City Planning, January 1983, Transportation, an Element of the Master Plan.

/7/ This deficit-per-ride figure is based upon information provided in: Touche Ross & Co., Transit Impact Development Fee Cost Study, Fiscal Year 1981-82, July 1983, corrected September 9, 1983, and consultation with Bruce Bernhard, Chief Financial Analyst, San Francisco Municipal Railway, telephone communication, October 11, 1984, and March 20 and May 13, 1985. The calculation of the peak period marginal deficit (additional cost per ride minus additional revenue per ride) was done by ESA.

/8/ According to Muni, the appropriate technique for determining the costs to Muni of cumulative development is an average cost analysis which would include both capital and operating costs. Application of this technique, however, is limited because relevant capital cost data are not available from Muni. Further, capital costs are difficult to allocate on a person-trip basis as capital expenditures occur from time to time in large amounts, not necessarily annually. The established method of allocating capital costs is through depreciation, which is based on historical depreciation costs, not replacement costs. Such an estimate would be low in comparison with the costs of new capital improvements required for a single passenger trip. The use of existing capital cost data

would underestimate future capital cost needs. Existing Muni accounting statistics do not enable future capital costs to be calculated on a per passenger trip basis (Bruce Bernhard, Muni Chief Financial Analyst, telephone communication, March 25, 1985).

/9/ The deficit due to the project would be: 310 peak-period trips per day x 252 working days per year x $0.50 deficit = $39,060. The cost deficit estimate is based on the assumption that essentially all vehicles are operating at capacity during peak periods and additional riders would require new vehicle trips. It was assumed that during off-peak periods, all vehicles operate with excess capacity, resulting in an average off-peak marginal cost of zero. These cost estimates are appropriate for projects costs to Muni of a single office building. Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average cost data. Muni does not have data that would enable it to estimate the average cost per passenger trip. It is reasonable to conclude that average costs would be significantly higher than marginal costs.

/10/ Ward Belding, Supervisor, Office of Research, BART, telephone conversation, September 27, 1985. The $1.20 average deficit per trip is based on all operating costs and revenues for the entire system and is not specific to San Francisco trips. Available data from BART do not enable peak and nonpeak period costs to be differentiated.

/11/ 619 BART trips per day x 252 days/year x $1.20 = $187,186.

/12/ Pushkarev and Zupan, 1975, Urban Space for Pedestrians, Cambridge, Mass., pp. 85-117.

/13/ Pedestrian counts were made by Environmental Science Associates, Inc. on Monday and Thursday, November 14 and 17, 1983 from 12 p.m. to 1 p.m. and from 4:30 p.m. to 5:30 p.m.

/14/ Intersection count of First and Mission Sts. was conducted by Environmental Science Associates, Inc., on Tuesday June 3, 1986, from 4:30 p.m. to 5:30 p.m.

/15/ San Francisco Department of City Planning, 1980, Center City Circulation and Goods Movement, Working Papers 1, 2 and 3, and Final Report.

F. AIR QUALITY

The analysis below includes a brief summary (summaries) of the material in the Downtown Plan EIR. This summarized material is incorporated by reference as follows:

VOLUME 1: FINAL EIR TEXT.

I. SUMMARY (pp. I.I.1-I.I.31). I. Air Quality; Short-term Construction Impacts, Long-Term Operation Impacts: Pollutant Emissions, Ozone Concentrations, Carbon Monoxide Concentrations, Total Suspended Particulate Concentrations, Nitrogen Dioxide Concentrations, Sulfur Dioxide Concentrations.

IV. ENVIRONMENTAL SETTING AND IMPACTS OF THE DOWNTOWN PLAN. I. Air Quality; Setting (pp. IV.I.1–IV.I.9): Introduction, Existing Regional and Local Air Quality: Ozone, Carbon Monoxide, Total Suspended Particulate, Nitrogen Oxides, Sulphur Dioxide; Air Quality Planning and Forecasting: Ozone Modeling for the 1982 Bay Area Air Quality Plan, Carbon Monoxide for the 1982 Bay Area Air Quality Plan, Carbon Monoxide Modeling for Downtown San Francisco, Other Pollutants. Impacts (pp. IV.I.9–IV.I.19): Short-term Construction Impacts; Long-Term Operation Impacts - Compatibility with Air Quality Plans, Pollutant Emissions; Ozone Concentrations - 1990, 2000; Carbon Monoxide Concentrations - 1990, 2000; Total Suspended Particulate Concentrations - 1990, 2000; Nitrogen Dioxide Concentrations - 1990, 2000; Sulphur Dioxide Concentrations - 1990, 2000.

V. MITIGATION OF ENVIRONMENTAL IMPACTS (pp. V.I.1–V.I.2). Annual Limits on New Commercial Development in the City; Measures Identified by this Report.

VOLUME 2: APPENDICES (pp. O.1–O.9). Calculations of Air Pollutant Emissions and Carbon Monoxide Concentrations.

VOLUME 3: SUMMARY OF COMMENTS AND RESPONSES (pp. C&R I.1–11). Part 1: Responses.

Upon completion, the project would affect air quality in two ways. Emissions would be generated by project-related traffic, and by combustion of natural gas for building space and water heating. Transportation sources would account for over 95% of project-related emissions.

The California Legislature mandated a biennial Inspection and Maintenance (I/M) program which applies to most cars and light trucks in California. This program went into operation in March 1984. An annual I/M program was evaluated in the 1982 Bay Area Air Quality Plan based on the 1979 source inventory. Based on predicted reduction in hydrocarbons and CO of 25% in vehicles covered, a reduction in total motor vehicle-generated CO of about 18% would be expected. The reduction in total regional CO emissions would be about 16%. The reduction in motor vehicle-generated hydrocarbons would be 17%; the reduction in total regional hydrocarbon emissions would be about six percent. Vehicle emission factors used in the model in the Downtown Plan EIR did not take the I/M program into account. To account for reductions from the I/M program, revised emission factors have been input into the revised Modified Linear

Rollback (MLR) for this project. This is the same version of the revised MLR method which was developed for the Downtown Plan EIR. By not quantifying predicted reductions from the I/M program, CO emissions were over predicted in the Downtown Plan EIR.

Curbside CO concentrations at selected intersections that would be affected by project-generated traffic and by cumulative development traffic were projected for conservative conditions, and are compared with ambient standards in Table 8, below. In 2000 the average vehicle is expected to emit less carbon monoxide (CO) than in 1984 due to ongoing state and federal emissions controls.

TABLE 8: EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentrations (ppm)/a/ 1984	Concentrations (ppm)/a/ Downtown Plan 2000/b/
First & Mission	1-hour	12.4	8.3
	8-hour	9.7	6.4
First & Harrison	1-hour	10.9	7.6
	8-hour	8.4	5.8
Beale & Mission	1-hour	13.4	8.6
	8-hour	9.8	6.5

/a/ Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Downtown Plan EIR. Background concentrations were calculated to be 7.4 ppm for one hour and 5.7 ppm for eight hours in 1984, and 5.7 ppm for one hour and 4.1 ppm for eight hours in 2000. Underlined values are in violation of the state or federal CO standards. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight hour state and federal standards are 9 ppm. Emission rates were derived from the California Air Resources Board EMFAC6D computer model, as published in the BAAQMD's Guidelines, November 1985. These emissions take into account the reduction in CO as a result of the ongoing Statewide Inspection/Maintenance Program.
/b/ Based on the growth forecast methodology contained in the Downtown Plan EIR. The project would be contained within this forecast.

SOURCE: Environmental Science Associates, Inc. and Downtown Plan EIR.

Currently, the eight-hour CO standard is estimated to be violated at the First and Mission and Beale and Mission intersections. CO concentrations are predicted to be less in 2000 than in 1984 and would not violate the standards at these intersections in this future scenario.

As CO concentrations in downtown San Francisco are almost entirely due to motor vehicles, future CO levels are predicted to be lower than they would be without an I/M program. Thus, actual concentrations are expected to be lower than CO concentrations shown in Table 8 and CO and HC emissions shown in Table 9, because the Downtown Plan EIR did not take the I/M program into account.

Table 9, below, shows projected daily emissions of pollutants in 2000 from project-generated traffic, projected daily emissions in 2000 for C-3 District development projected by the Downtown Plan EIR, and total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan. The project would contribute about one percent to the total emissions generated by Downtown Plan development, in 2000.

TABLE 9: PROJECTED DAILY POLLUTANT EMISSIONS

Pollutant	Emissions (tons per day) /a/ Project 2000/b/	Downtown Plan 2000/c/	Bay Area 2000/d/
Hydrocarbons	0.005	0.6	428
Nitrogen Oxides	0.006	0.8	610
Carbon Monoxide	0.045	6.6	1,883
Particulates	0.011	1.3	649
Sulfur Oxides	0.001	0.1	233

/a/ Project and Downtown Plan emissions calculated using BAAQMD vehicle emission factors. Emissions of HC, NOx, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust disturbed from roadway surfaces.
/b/ Based upon a weighted daily average of 12.8 miles traveled.
/c/ Incremental emissions of C-3 District development, per The Downtown Plan EIR, Vol 1, Table IV.I.2, p. IV.I.12.
/d/ Cumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan, pp. 42, 53 and 112.

SOURCE: Environmental Science Associates, Inc. and Downtown Plan EIR.

Emissions of total suspended particulates (TSP) resulting from construction and from vehicle trips generated by the project and cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility./1/

The 1982 Bay Area Air Quality Plan contains strategies which consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. Emissions associated with the project and with cumulative downtown development under the Downtown Plan are not projected by this EIR or the Downtown Plan EIR to increase ozone concentrations, and thus would not conflict with the objectives of the 1982 Bay Area Air Quality Plan regarding ozone. Cumulative downtown development is projected by the Downtown Plan EIR potentially to result in a violation of the eight hour CO standard at the Brannan/Sixth intersection as analyzed therein. Using the revised emission factors which account for the I/M program in the revised version of MLR contained in the Downtown Plan EIR, the City no longer predicts violations of CO standards at the Sixth and Brannan intersection, or other intersections which have been modeled in the greater downtown. Based on the above, cumulative downtown development would not conflict with objectives of the 1982 Bay Area Air Quality Plan regarding CO.

NOTE – Air Quality

/1/ State particulate standards were changed in 1983 to concentrate on fine particulate matter which has been demonstrated to have health implications when inhaled. Until the State adopts a method for monitoring fine particulate matter, it is not possible to determine what proportion of TSP in San Francisco would be subject to review against the new standards, whether new standards would be violated, or what the health implications would be.

G. CONSTRUCTION NOISE

Ambient noise in the project vicinity is typical of noise levels in downtown San Francisco, which are dominated by vehicular traffic, including trucks, cars, Muni buses and emergency vehicles. Sidewalk noise measurements taken during the weekday p.m. peak commute time show average noise levels of about 77 dBA on Mission and First Sts./1,2/ The Downtown Plan EIR indicates day-night weekday noise levels (Ldn) of about 72 dBA along Mission St. in the vicinity of the project./3/

Project construction would take place over about 24 months, and would increase noise levels in surrounding areas. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and listener, and presence or absence of barriers between noise source and listener. To estimate probable noise impacts, this analysis assumes typical equipment and construction

techniques. Table 10 shows typical exterior noise levels associated with the different phases of construction (see Appendix F, p. A-48, for a table of typical noise levels found in the everyday environment). Interior noise levels at 50 ft. from the noise source would be about 10 to 15 dBA less than those shown in Table 10. Closed windows would reduce noise levels by about 20 to 25 dBA below those shown in the table.

TABLE 10: TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS, 50 FEET FROM SOURCE

Construction Phase	Duration of Phase/a/ (weeks)	Average Noise Level (dBA)
Ground clearing	8	84
Excavation	12	89
Foundations/b/	12	78
Erection	20	85
Exterior Finishing	20	89

/a/ Some phases of construction would overlap.
/b/ Time includes six weeks of pile driving; noise level is for activities other than pile driving. Noise levels during piledriving could reach 105 dBA at 50 ft. from the source.

SOURCE: Bolt, Beranek and Newman, December 31, 1971, Noise from Construction Equipment and Home Appliances, Environmental Protection Agency

Construction noise is regulated by the San Francisco Noise Ordinance (Article 29 of the City Police Code). The ordinance requires that sound levels of construction equipment other than impact tools not exceed 80 dBA at a distance of 100 ft. from the source. Impact tools (jackhammers, pile drivers, impact wrenches) must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. Section 2908 of the Ordinance prohibits construction work at night, from 8 p.m. to 7 a.m., if noise would exceed the ambient noise level by five dBA at the project property line, unless a special permit is authorized by the Director of Public Works.

Several classrooms and the law library are among the Golden Gate University facilities which front Mission St., directly opposite the site. Operating hours at the University are 7 a.m. to 10 p.m. Monday through Saturday and 8 a.m. to 10 p.m. on Sundays. The Law Library is open for student use until 11 p.m each night. Mission St. has a noise level of 72 dBA (Ldn)./4/ Noise levels in the University as a result of pile driving for the project could reach as high as 103 dBA with windows open and 88 dBA with windows closed. Any evening pile driving would be more noticeable to occupants of the University with the

reduced background traffic noise. The University requested and the developer agreed that pile driving for the 100 First St. project adjacent to the site on the east, be limited to between 11 p.m. and 7 a.m. Mondays through Saturdays and 11 p.m. to 8 a.m. on Sundays to minimize disturbance to students./5/ The sponsor of 535 Mission St. has also agreed to seek a special permit to limit the pile driving activities to these hours (see p. 133). The sponsor must obtain a special permit for pile driving after 8 p.m., as noted below.

The Department of Public Works allows pile driving operation under certain conditions, which may include specifying relatively quiet equipment, predrilling pile holes, and/or specifying hours of operation to reduce the number of people exposed to noise effects. Pile driving would occur intermittently over about six weeks; hammering would occur during a five- to eight-minute period for each pile.

Vibrations from the impact during pile driving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. General stress reaction has been observed in humans exposed to brief sounds of 75 dBA./6/ Noise at levels greater than 60 dBA can interfere with normal speech and concentration, noise levels greater than 70 dBA would require workers to close windows or shout to communicate. Intermittent noises, such as pile driving noise, reduce perception of control over the environment. This perceived loss of control frequently results in a depressed mood and depressed motivation. It has also been shown that high noise levels can lead to elevated blood pressure./7/ Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance, than continuous or steady sounds of comparable level./8/ Occupants of nearby buildings would experience noise levels during pile driving of up to 88 dBA with windows closed; this would result in occupants having to shout to communicate and would make telephone conversations difficult. Occupants could also experience the other effects described in this paragraph. Pile holes would be predrilled which would reduce the duration of pounding for each pile. During other phases of construction, noise levels from the use of equipment such as tractors, impact wrenches, jackhammers and soldier piling, would probably cause workers in nearby buildings to close windows. With windows closed, noise levels could reach as high as 70 dBA, interfering with speech and concentration. Generally, noise levels over 60 dBA may be considered annoying, and can interfere with concentration. Measures included as part of the project to reduce construction noise and vibrations are on p. 133.

Additional developments in the immediate project vicinity are in different stages of environmental review, project approval or construction: 71 Stevenson (Stevenson Place), 455 Market (Central Plaza), and 100 First St. are currently under construction; 49 Stevenson is approved; and One Second St. (Stevenson and Second), 524 Howard and 526 Mission (at First St.) are planned in the project area. The EIR for 524 Howard St. has been certified; that project has been withdrawn. Under Section 321 of the City Planning Code it may be resubmitted for consideration at a later date. One Second St., Second and Mission, and 526 Mission St. have not yet had a Draft EIR published. Some phases of other developments' construction could overlap with construction of the project. The 100 First St. development is closest to the project site, and the 526 Mission St. development is proposed across Mission St. from the site of the project and 100 First St. The most likely project to overlap in construction schedule with the project would be 100 First St. Should any of these projects' construction schedules coincide with that of the proposed project, noise levels would be expected to increase by about five dBA. This increase would be audible and the noise level would be annoying. Were 524 Howard's construction to coincide with that of the project, part of the noise increase would be muffled or blocked by the Transbay Terminal located between the project site and 524 Howard. Should one project be completed and a second begin soon after, noise impacts would be prolonged.

In summary, during the majority of construction activity, noise levels would be expected to be above existing levels in the area. There would be times, particularly during the operation of pile drivers or impact wrenches, when noise would interfere with indoor activities in nearby offices, retail stores and Golden Gate University.

In order to reduce construction noise impacts of the project, the sponsor and general contractor would agree to the following measures: the construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance (Article 29, San Francisco Administrative Code, 1972). The general contractor would construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA. The general contractor would locate stationary equipment in pit areas or excavated areas, as these areas would serve as noise barriers.

The project sponsor would require that the construction contractor predrill holes for piles, in order to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile. Project sponsor has agreed to restrict pile driving to hours required by the Department of Public Works. The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance to neighboring uses. Pile driving would be limited to the hours between 11:00 p.m. and 7:00 a.m. Mondays through Saturdays and 11:00 p.m. and 8:00 a.m. on Sundays to minimize disturbance to the occupants of Golden Gate University. This would require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2907(c).

NOTES – Construction Noise

/1/ Noise measurements were taken between 5 p.m.. and 6 p.m. on Tuesday, November 22, 1983, by Environmental Science Associates, Inc. Measurement locations were along First and Mission Sts. midway between intersections on the project block.

/2/ A decibel (db) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels. A dBA is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels.

/3/ Ldn, the day-night average noise level measurement, is based on human reaction to cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of nighttime noises. Noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/4/ Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Volume 1, pp. IV.J.1-19, particularly Table IV.J.2, pp. IV.J.9-10.

/5/ Susan Barney, Vice President, Administration, Golden Gate University, letter, March 15, 1985, available for review at the Department of City Planning, 450 McAllister St. (File No. 83.331E, 100 First St.).

/6/ The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

/7/ Sheldon Cohen, et al., "Cardiovascular and Behavioral Effects of Community Noise," American Scientist, Volume 69, October 1981.

/8/ National Institute for Occupational Safety and Health, Occupational Exposure to Noise, U.S. Department of Health, Education and Welfare, 1972.

H. EMPLOYMENT

Tenant Displacement

The project would displace four existing businesses that employ about 71 workers (see Table 11). ABC Draperies, Inc., employing 30 people recently (early 1986) went out of business (the employees moved to another employer on Mission St.). Two of the tenant leases expired in September 1985 and were not renewed, but the tenants are continuing on a month-to-month basis; and the other two expire in February 1987. Replies to a survey inquiring about relocation plans were received from all four leasees (and ABC Draperies). One of the businesses plans to relocate at another, as yet unknown, San Francisco, location one, Kindel and Graham plan to relocate to their own building (in the area) in February 1987, one plans to relocate outside the City and one, Shenk Business Equipment (the former owner of 531 Mission St.), has an option for 1,000 sq. ft. of retail and 1,000 sq. ft. of storage space in the proposed project. Length of tenancy for existing tenants ranges from five years (San Francisco Consulting Group) to 39 years (Superior Marking Devices) with an average tenancy of 20 years./1/

TABLE 11: EXISTING USES AND EMPLOYMENT AT THE SITE

Address (Lot)	Tenant	Gross Floor Area (sq. ft.)/a/	Employees/b/
531 Mission (Lot 83)	Shenk Business Equipment	14,400	40
533 Mission (Lot 83)	S.F. Consulting Group	5,040	15
533 Mission (Lot 83)	Superior Marking Devices	5,400	6
535-114 First (Lot 68)	Vacant	18,540	0
539-114 First (Lot 68)	Kindel & Graham Toys	21,240	10
TOTAL		64,620	71

/a/ There is about 17,880 sq. ft. of storage space in both buildings used by most of the current tenants, for a total of 82,500 sq. ft. on both lots.
/b/ Information on number of employees provided by building tenants and Bredero-Northern.

SOURCE: Bredero-Northern; and Environmental Science Associates, Inc.

Direct Project-Related Employment

The project would accommodate the growth of office and retail employment in the C-3 District. Although, at this time, no tenants have been secured, it is expected that office businesses providing management, technical, and professional services would occupy most of the space. Over time, the project is expected to be characteristic of all C-3 District office buildings occupied by a mix of corporate and business service firms. Therefore, average overall density factors for the C-3 District (gross sq. ft. of space per employee) are used to estimate the employment characteristics of the project, as opposed to using any particular tenants which may or may not remain in the building over the long term.

Demolition of existing space for construction of the new project would result in the displacement from this site of the existing businesses and employees.

In total, there would be about 988 workers at the project site, consisting of 950 office workers, 14 retail workers, and 24 building maintenance/security workers (see Table 12). There are currently 71 employees on-site, therefore the project would result in an increase of about 917 workers at the project site. The additional space represented by the project would accommodate about 880 additional employees in the C-3 District. There would be a net increase of about 930 office employees, a net decrease of about 50 retail employees, a net decrease of about 34 downtown support and light industrial employees, and a net increase of about 24 building maintenance/security employees./2/ The difference between the estimate of total employment and the estimate of additional employment is accounted for by the demolition of the existing space on the project site.

Total permanent employment in the C-3 District is forecast to be about 372,000 in 2000 under the Downtown Plan. This forecast represents an increase of about 91,200 C-3 District workers between 1984 and 2000. Total employment in the project would represent about 0.3% of total C-3 District employment in 2000. The additional C-3-District employment accommodated in the project would represent about 0.2% of total C-3 District employment in 2000 and about one percent of the forecast growth in permanent employment.

About 2,130 additional jobs in the Bay Area would result from the employment multiplier effect of project operation. Construction of the new project would require about 130 person-years of construction labor. Construction labor for the project would represent about 0.2% of the total person-years of construction labor forecast for the C-3 District

from 1984 through 2000. About 220 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction./3/

TABLE 12: ESTIMATED PROJECT EMPLOYMENT

Use	Total Project Building Space/a/	Space Per Employee/b/	Estimated Employment
Office	255,010	268 /c/	950
Retail	5,000	350	14
Subtotal			964
Building Maintenance/ Security	296,545	12,500	24
TOTAL EMPLOYMENT			988

/a/ Space estimated from Table 1, Project Description.
/b/ Gross sq. ft. of building space per employee. C-3 District employment density factors from Downtown Plan EIR. (See Note /2/ at end of section.)
/c/ Density for all office activities in 2000, including both management/technical office and trade/customer service office, and incorporating an average 5% vacancy factor.

SOURCE: Environmental Science Associates, Inc.

The forecast of cumulative C-3-District employment to the year 2000 (of which the proposed project employment is a part) consists of both "basic" economic growth (activities supported by sales to buyers outside the area) as well as the part of the "multiplier" of this growth that occurs in the C-3 District. The multiplier is the economic growth that results from business purchases and the spending of employees and employee households. The project could include both businesses that generated additional C-3-District economic activity and businesses that were part of the multiplier effect of other C-3-District activities.

In addition to the part of the multiplier effects that occurs in the C-3 District, there would be other economic activity generated by business and employee household spending elsewhere in the City and the rest of the region.

NOTES - Employment

/1/ Tenant surveys received from Bredero-Northern, July, 1985. The surveys are on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

/2/ Employment in the project is calculated from the estimates of space by use in the project using employment density factors (gross sq. ft. of space per employee). The employment density factors are those developed in the analysis for the Downtown Plan EIR. (See Downtown Plan EIR, Table IV.C.2, p. IV.C.6 and Table H.3, pp. H.21-H.22.) The office employment density factor used here (268 gross sq. ft. per employee) is for total C-3 District office in the year 2000, including both management/technical office and trade/customer service office business activities. It is different from the density factor of 255 gross sq. ft. of occupied space per employee described in the Downtown Plan EIR (see p. IV.C.45), however, because it incorporates an average office vacancy rate of 5%. (See Downtown Plan EIR, note 7, pp. IV.C.55-IV.C.56). This density factor (as well as the other for occupied space) is consistent with the Downtown Plan EIR forecasts of employment and space which incorporate an average office vacancy rate of 5%.

The year 2000 density factors are used so the project can be set in the context of cumulative C-3 District development to 2000. Under the Downtown Plan, office employment densities are expected to increase over time as businesses take steps to use space more efficiently when faced with higher rents. This is reflected in the office employment density used in this EIR. (See Downtown Plan EIR, pp. IV.C.45 and notes 28, 29 and 30, pp. IV.C.60-IV.C.61.)

/3/ Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. The multipliers used are averages of the employment multipliers contained in that model.

J. GROWTH INDUCEMENT

The project would include about 255,010 gross sq. ft. of office space (a net increase of about 249,970 gross sq. ft.) and about 5,000 sq. ft. of retail and restaurant space (a net decrease of about 16,240 gross sq. ft. of retail uses). Employment at the site would increase from about 71 to about 988 people, an increase of about 917. Occupants of the proposed project are not known, but could include tenants currently on the site, tenants expanding or relocating from other San Francisco locations, tenants relocating from outside San Francisco, and firms new to the Bay Area. The increase in employment at the project site, therefore, would not necessarily represent employment that is new to San Francisco. If the project were fully leased, however, and the office space of the project did not create permanent vacancies in other San Francisco office buildings, total employment in San Francisco could increase by about 917 jobs due to the project. Approximately 2,130 additional jobs would be supported indirectly in San Francisco through the multiplier effect./1/

If marketed successfully, the project, together with other planned office development, could have growth-inducing effects by demonstrating a market for office space in this area. This could thereby encourage similar development on lots (including smaller lots assembled for development) currently occupied by low- or mid-rise buildings containing business support services. Such a demand would reflect the trend of growth in service sector and headquarters office activities and employment in San Francisco. Increases in downtown office space and employment would contribute to continued growth of local and regional markets for housing, goods, and services. These effects would be less extensive were the vacancy rate for office space to continue to rise. Should this occur, projected increases in downtown employment would be less and the growth in demand for goods, services and housing would be lower.

It is expected that some downtown workers, including some in the project, would want to live in San Francisco. Employment growth, however, would not be reflected directly in increases in demand for housing and city services to residents, as some new jobs would be held by individuals who already live and work in the City; who live in the City but previously either did not work, or worked outside the City; who live in surrounding communities; or by those unable to afford or locate housing in the City. New downtown workers would also increase demand for housing in other parts of the Bay Area.

Any net increase in employment downtown would increase the demand for retail goods and services in the area. The project would intensify this demand by increasing the amount of employment on the site and by displacing more retail shops and services than it would replace. Increases in employment downtown would also increase demand for business services, to the extent that the expanded space would not be occupied by firms providing those services. In response, demand would increase for existing space and possibly for further new development.

As noted above, the project would displace businesses on the site that include downtown support services, light industrial and manufacturing uses, retail, storage and office space. The project would continue the trends of loss of industrial and blue collar jobs and the increase in land values and rents in the South of Market area which have been documented by the Department of City Planning./2/

The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under consideration would be required to accommodate new development and increased employment due to, or induced by, the project.

NOTE - Growth Inducement

/1/ Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. The multipliers used are averages of the employment multipliers contained in that model.

/2/ Dean Macris, Director of Planning, "Memorandum: South of Market Interim Controls," January 26, 1982.

V. MITIGATION MEASURES PROPOSED TO MINIMIZE THE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been, or would be, adopted by the project sponsor or project architects and contractors and thus are proposed; some are under consideration; and some have been rejected. Implementation of some may be the responsibility of public agencies. Measures under consideration or measures rejected by the sponsor may be required by the City Planning Commission as conditions of project approval.

Each mitigation measure and its status are discussed below. Where a measure has not been included in the project, the reasons for this are discussed.

Mitigation measures below preceded by an asterisk (*) are from the Initial Study (see Appendix A, p. A-2).

VISUAL QUALITY

MEASURE PROPOSED AS PART OF THE PROJECT

*- In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

CULTURAL RESOURCES

MEASURES PROPOSED AS PART OF THE PROJECT

- The sponsor would retain the services of an archaeologist. The Environmental Review Office (ERO) in consultation with the President of the Landmarks Preservation Advisory Board (LPAB) and the archaeologist would determine whether the archaeologist should instruct all excavation and foundation crews on the project

site of the potential for discovery of cultural and historic artifacts, and the procedures to be followed if such artifacts are uncovered.

Given the strong possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations the project sponsor would undertake a program of archaeological testing. This would consist of observation and monitoring by a qualified historical archaeologist of site clearance of at least any materials below existing grade level, and either the placement of a series of mechanical, exploratory borings or of other similar on-site testing methods. The archaeologist would supervise the testing at the site to determine the probability of finding cultural and historical remains. At the completion of the archaeological testing program, the archaeologist would submit a written report to the ERO, with a copy to the project sponsor, which describes the findings, assesses their significance and proposes appropriate recommendations for any additional procedures necessary for the mitigation of adverse impacts to cultural resources determined to be significant.

An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation, even if this results in a delay in excavation activities.

In addition, a program of on-site construction monitoring by a qualified historical archaeologist, designed to allow for the recovery of a representative sample of the cultural materials existing on the site, would be implemented by the project sponsor. This monitoring and recovery program would result in a written report to be submitted to the ERO, with a copy to the project sponsor.

Should cultural or historic artifacts be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities following the preconstruction archaeological testing program which might damage the discovered cultural resources would be suspended for a maximum of four weeks

(cumulatively for all instances that the ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

- Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon concurrence by the ERO and the President of the LPAB would be placed in a repository designated for such materials. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University.

TRANSPORTATION

MEASURES PROPOSED AS PART OF THE PROJECT

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects (such as 100 First St.) that are planned for construction or later become known.

- The project sponsor would contribute funds for maintaining and augmenting transportation services in an amount proportionate to the demand created by the project, as provided by the Board of Supervisors Ordinance Number 224-81. Should said Ordinance be declared invalid by the courts, the project sponsor has agreed to participate in any subsequent equivalent mitigation measures adopted by the Planning Commission or the City in-lieu thereof, which would apply to all projects similarly situated.

- Secure, safe bicycle storage facilities would be provided relative to the demand generated by project commuters and short-term visitors.

- At the request of the Department, the sponsor would provide a fair and equitable in-lieu contribution toward the Transportation Study for the South of Market area. Alternatively, within a year of full occupancy of the project, the sponsor would conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for carpools and vanpools. The project sponsor would make this survey available to the Department. This measure would provide needed information to aid in transportation planning within the City.

- The project sponsor would, in consultation with the Municipal Railway, install eyebolts or make provisions for direct attachment of eyebolts for Muni trolley wires on the proposed building wherever necessary or agree to waive the right to refuse the attachment of eyebolts to the proposed building if such attachment is done at City expense.

- The project sponsor shall: 1) participate with other project sponsors and/or the San Francisco Parking authority in undertaking studies of the feasibility of constructing an intercept commuter parking facility in a location appropriate for such facility to meet the unmet demand for parking for those trips generated by the project which cannot reasonably be made by transit, and 2) participate with other project sponsors and/or the Municipal Railway in studies of the feasibility of the establishment of a shuttle system serving the project site and the parking facility.

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.

- As required by Section 163 of the City Planning Code, a member of the building management staff would be designated as a transportation broker to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area commuters by providing a central clearinghouse for carpool and vanpool information.

- Off-street parking spaces would be controlled to assure priority for vehicles driven by the physically handicapped, vehicles using spaces for short-term rather than all-day parking, and vanpool and carpool vehicles. All remaining parking spaces would be subject to rates that encourage short-term use of said spaces and discourage all-day parking; the parking rate would be reviewed and approved by the Department of City Planning, or alternatively, the project sponsor would agree to be bound by a formula, to be developed by the Department of City Planning, which structures rates so as to favor short-term parking.

- Building directories and signs for the service elevators would be placed in the loading area.

- The project sponsor would ensure that valet parking did not block or hinder service vehicle access to the basement.

MEASURE UNDER CONSIDERATION BY PROJECT SPONSOR

- The parking driveway could include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure. The sponsor will make a decision on this measure during final design stage based on design criteria and cost.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Pacific Gas and Electric Company could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

- The City could implement the transportation improvements described in the Downtown Plan. Cumulative transportation impacts within San Francisco would be reduced by the improvements, and, to the extent that San Francisco could influence transportation improvements recommended by the Plan for areas outside the City, regional cumulative impacts caused by downtown growth would also be reduced.

- The City could act to implement the transportation mitigations described in Vol. 1, Section V.E., Mitigation, pp. V.E.4-28, in the Downtown Plan EIR. These measures are similar or identical to those in the Downtown Plan and include, in summary: measures to construct and maintain rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; measures to fund Vehicle Acquisition Plans for San Francisco and regional transit agencies to expand existing non-rail transit service; provide exclusive transit lanes on City streets and on freeways; reduce incentives to drive by reducing automobile capacities of bridges and highways in certain circumstances and by discouraging long-term parking; measures to encourage carpools, vanpools, and bicycle use; and measures to improve pedestrian circulation within downtown San Francisco. Some of the Implementing Actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such as the Transit Impact Development Fee assessment required by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

AIR QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

*- The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day to reduce dust generation by about 50%; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil, sand, or other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce TSP emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting

in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

- Measures identified to mitigate traffic impacts would also mitigate air quality impacts. Increasing roadway capacity (where feasible and cost effective), reducing vehicular traffic through increased ridesharing (carpool, vanpool, and transit), and implementing flexible and/or staggered work hours would reduce local and regional emissions of all pollutants.

NOISE

MEASURES PROPOSED AS PART OF THE PROJECT

- The construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).

- The project sponsor would require the general contractor to construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA, and to locate stationary equipment in pit areas or excavated areas, as these areas would serve as noise barriers.

- The project sponsor would require that the project contractor predrill holes (if feasible based on soils) for piles to the maximum feasible depth to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile.

- The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance to neighboring uses. Pile driving would be limited to the hours between 11 p.m. and 7 a.m. Mondays through Saturdays and 11 p.m. and 8 a.m. on Sundays to minimize disturbance to the occupants of Golden Gate University. This would require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2907(c).

*- As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features would include fixed windows and climate control.

ENERGY

MEASURES PROPOSED AS PART OF THE PROJECT

*- The project would be more energy-efficient than required by Title 24 of the California Administrative Code.

*- A variable-air-volume air conditioning system would control the volume of conditioned air so that the building would maintain a comfortable temperature efficiently.

*- Fluorescent lights with parabolic diffusers would be used to conserve energy and reduce glare. Return-air diffuser slots in light fixtures would reduce air conditioning loads by removing part of the heat generated by light fixtures. Whenever possible, office suites would be equipped with individualized light switches, and time clock operation to conserve electrical energy.

*- Natural gas would be used for water heating.

*- An airside economizer would be used for free cooling whenever the outside air is below building temperature.

*- A water economizer cycle system using condenser water to generate chilled water would be installed, so that in hot weather the heat exchangers would cool the water without using excessive amount of electricity.

*- A carbon monoxide monitoring system would control garage ventilation to avoid unnecessary operation of fans.

MEASURES UNDER CONSIDERATION BY PROJECT SPONSOR

*- The sponsor is considering performing a thorough energy audit of the structure's actual energy use after the first year of occupancy and implementing all cost effective alterations to the structure's energy system identified in the audit. Results of the audit would be available to the City. The decision whether to implement this measure would be made after completion of the building when energy use could be accurately measured and a determination of efficiency of energy consumption could be made.

*- Active solar water heating is being considered for preheating of water. The decision as to whether to implement this measure would be made after completion of the building when energy use could be accurately measured based on a determination of savings from the measure. If it is determined that the dollar amount of energy savings that could be achieved through the use of active solar would cover the cost of installation, then this measure would be implemented by the sponsor.

GEOLOGY/TOPOGRAPHY

MEASURES PROPOSED AS PART OF THE PROJECT

*- A detailed foundation and structural design study would be conducted for the building by a California-licensed structural engineer and a geotechnical consultant. The project sponsor would follow the recommendations of these studies during the final design and construction of the project.

*- If dewatering were necessary, any groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.

*- Should dewatering be necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of

surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. Costs for the survey and any necessary repairs to service under the street would be borne by the contractor.

- The final soils report would also recommend whether or not watering of piles of adjacent structures was necessary. If it were found to be necessary, the project sponsor would ensure that the general contractor complied.

HAZARDS

MEASURES PROPOSED AS PART OF THE PROJECT

*- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.

*- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

UTILITIES / PUBLIC SERVICES

MEASURE PROPOSED AS PART OF THE PROJECT

- The project would include on-site storage for trash containers in the basement. Containers would not be placed on streets or sidewalks except during actual trash pickup.

MEASURE UNDER CONSIDERATION BY PROJECT SPONSOR

- The project could provide containers to collect and store recyclable solid waste (such as glass, metal, computer cards, and newspaper) and the project sponsor could contract for recycling service. The project sponsor will make a decision about this measure during final building design based on cost effectiveness.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This chapter is subject to final determination by the City Planning Commission as part of its certification process for the EIR. Chapter VI of the Final EIR will be revised, if necessary, to reflect the findings of the Commission.

This chapter identifies significant impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the project, as described in Chapter V., Mitigation Measures, p. 127.

No project-specific significant impacts have been identified. Mitigation measures included as part of the project are described in Chapter V., Mitigation Measures, p. 127.

Cumulative development in downtown San Francisco would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on Muni, BART and other regional transit carriers. These cumulative transportation impacts could cause violations of the total suspended particulate (TSP) standard in San Francisco with concomitant health effects and reduced visibility. The proposed project would contribute to these cumulative effects.

In the past, EIRs for projects in downtown San Francisco have found cumulative effects due to potential violations of carbon monoxide (CO) standards in San Francisco. CO was overpredicted in these EIRs due to the unquantified reductions in vehicle emissions from the I/M program which were not previously accounted for. When these emission reductions are accounted for, as has been done in the cumulative analysis for CO in this EIR, there would no longer be predicted violations to CO standards due to cumulative downtown development in San Francisco.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses environmental impacts associated with these alternatives, and gives the reasons the alternatives were rejected in favor of the project. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative instead of the proposed project if the Commission believed the alternative would be more appropriate for the site.

A. ALTERNATIVE A: NO PROJECT

DESCRIPTION OF ALTERNATIVE

This alternative would entail no change to the site. The proposed project would not be built there. Two existing buildings, housing four businesses (formerly five), that are proposed to be demolished would be retained.

DISTINCTIVE ENVIRONMENTAL EFFECTS OF ALTERNATIVE

The environmental characteristics of this alternative would be generally as described in the Environmental Setting sections of this report (see Chapter III, Setting, pp. 31 to 55, for a discussion of existing conditions). Transportation and noise impacts associated with the demolition of the two on-site buildings and building construction would not occur. Transportation, and air quality conditions (as described in Chapter IV, Impacts, pp. 59 to 126) as base conditions with cumulative development, but without the project, would exist around the site. There would be no change in the demand from the site for energy or community services. Employment on the site would not increase (as it would with the project) from about 71 existing to about 988 jobs. Revenues from, and costs of, the project would not result. Land uses, site views, shadows and winds would not change. One building rated "C" by Heritage and one unrated building would be preserved. Both of the site buildings have spaces for small businesses.

This alternative could result in the development of other office space, possibly a highrise building comparable to the project, at another location. Alternative development within the San Francisco downtown area would result in many of the same impacts as described for the project. The effects of development would depend largely on the location chosen and cannot be accurately determined. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

SPONSOR'S REASONS FOR REJECTION

This alternative was rejected by the project sponsor because it would not provide a return on his investment and would not use the development potential of the site allowable under the Downtown Plan. In the sponsor's opinion, this alternative would not further policies of the Downtown Plan concerning location of development, preservation of architecturally significant buildings and open space.

B. ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 9:1 FAR

DESCRIPTION OF ALTERNATIVE

The project as proposed would include the transfer of 108,130 gsf. of development rights from as-yet unidentified sites. This alternative considers a building without TDR. The FAR would be 9:1, the basic allowable FAR without TDR, instead of 15.6:1.

Office space would be 146,525 sq. ft. compared with 255,010 gsf. for the project. The building would be 12 stories tall (about 200 ft. tall) compared to 23 stories (about 300 ft. tall) for the project. Retail (4,540 sq. ft.), and restaurant (2,900 sq. ft.) would be located on the ground floor and a mezzanine (compared with 5,000 sq. ft. of retail on the ground-floor and no restaurant with the project). More parking (about 45 spaces, five spaces more than with the project) would be provided in the basement since no space would be required for service loading. Under the Planning Code, the ground floor, with retail, circulation and building service areas, would not be applicable to the FAR. The retail and restaurant space on the mezzanine could also be excluded from the FAR, subject to approval under Section 309.

The open space requirement for this alternative would be 2,930 sq. ft., which would be met through the provision of a mezzanine terrace (2,025 sq. ft.) and development of off-site open space and/or an in-lieu contribution (to meet the remainder of the open space requirement of 905 sq. ft.). A second level sun terrace with an amphitheater, and an indoor winter garden would not be developed as with the project.

This alternative would feature a central curved, glass element between concrete walls on the east and west facades, above a six-story concrete base element bisected on the north and south (Mission and Minna) facades to reveal the central glass element. This alternative would be about 200 ft. tall compared with the 300-ft.-tall project (see Figure 29, p. 140). The roof would feature twin cylinders (turrets) one-story in height. Two loading docks would be provided, with access from Minna St. No service vehicle parking would be provided in the basement; the two ground-floor docks would meet the requirement for loading space. The parking spaces on the basement level would be operated with the rate structure set out in Section 155(g) of the Downtown Plan to discourage long-term parking.

DISTINCTIVE ENVIRONMENTAL EFFECTS OF ALTERNATIVE

This alternative would be about 100 ft. shorter than the project; it would be less visible in mid- and long-range views than the project. Alternative B would not require the transfer of development rights. This alternative would result in the demolition of a C-rated structure, like the project.

This alternative would not shade Tishman Plaza (which the project would do at 10:00 a.m. in December), and, like the project, would not cast shadows on the Fremont Center plaza. Shadows on the Golden Gate University entry plaza would be about 30% less than the project. Shadows on the 100 First St. sun terrace would be greater than with the project, as this alternative would not feature the major diagonal cut on the southeast corner on the second floor that, in the project, would allow sunlight onto the 100 First St. sun terrace (and the project open space) in afternoon hours.

The open space requirement would be met as discussed above. The Planning Code requires one percent of construction costs to be invested in publicly visible works of art. As with the proposed project, this alternative would comply.

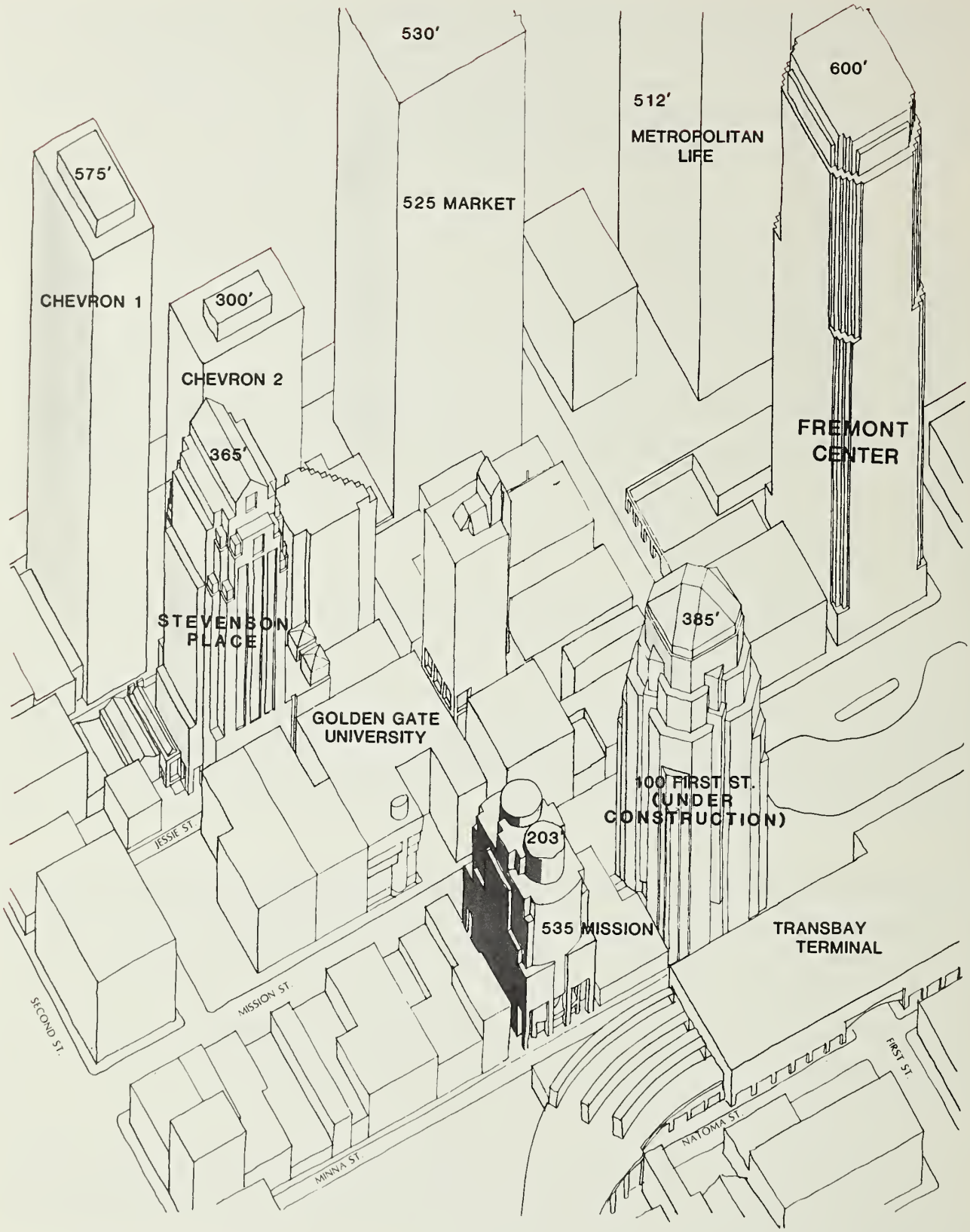


FIGURE 29: 535 MISSION ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 9:1 FAR

URCE: HELLER & LEAKE AND KAPLAN/McLAUGHLIN/DIAZ

This alternative would provide employment for about 580 employees, compared to about 988 employees for the proposed project. It would generate a demand for about 55 new dwelling units in San Francisco, based on the OAHPP formula, compared to 96 for the proposed project.

Transportation, air quality and energy impacts associated with on-site uses would be about 40% less than those of the proposed project because there would be about 40% less office space than with the project. Construction noise impacts would be experienced for a shorter amount of time, as the construction period would be shorter. Any effect on cultural resources would be the same as for the project.

SPONSOR'S REASONS FOR REJECTION

The sponsor has rejected this alternative because it would not provide for the full use of the development potential permitted under the Downtown Plan, would not provide for preservation of architecturally significant buildings which by transfer of development rights, would create more shadows on the 100 First St. sun terrace, and in the sponsor's opinion, would not meet stated policies of the Downtown Plan to redirect growth to the South of Market; and to situate major new development in close proximity to transit nodes. The Downtown Plan designates the area, south of the Transbay Terminal, for the highest development in the south of Market C-3 districts. It also encourages development in other nearby areas around the Transbay Terminal. The sponsor believes that, if sites are not developed to their fullest potential in the area specifically identified by the Downtown Plan for increased growth, development pressures would continue in areas out of where the Downtown Plan attempts to redirect growth, such as the North of Market or Chinatown.

C. ALTERNATIVE C: NO EXCEPTION TO REQUIRED APPROVALS

C1: NO EXCEPTION TO PLANNING CODE SEPARATION OF TOWERS OR BULK REQUIREMENTS

DESCRIPTION OF ALTERNATIVE

This alternative would include setbacks above the base as called for in Section 132.1(c) Seperation of Towers. This alternative would be set back above the base 15 ft. from the

eastern interior property line and 15 ft. from the center of Shaw Alley. This alternative would include 229,550 sq. ft. of office and 5,000 sq. ft. of retail, and 7,200 sq. ft. of open space (compared with 255,010 sq. ft., 5,000 sq. ft. and 5,700 sq. ft., respectively, with the project). Also, this alternative would have a maximum length of 130 ft. in the upper tower (compared to 145 ft. for the project) and would thus not require an exception to City Planning Code bulk limits. Other features of this alternative would be as for the project. The project would require such an easement from the Building Code requirement of a five-foot setback on the east property line; this alternative would not.

DISTINCTIVE ENVIRONMENTAL EFFECTS OF ALTERNATIVE

This alternative would be the same as the project in height and design elements and, therefore, would have the same visibility in mid- and long-range views and the same design elements and relationship to Master Plan Urban Design policies. The area of retail and parking would be the same as the proposed project; office space would be about ten percent less than with the project.

Shadow and wind effects would be the same or less than those of the project.

As with the project, this project would comply with City Planning Code requirements for childcare, art and open space.

Off-street loading space standards in the Code would require two spaces for this alternative, which would be provided in the same manner as those on the ground floor of the proposed project. This alternative design would have 45 new parking spaces on the basement level, compared to 40 spaces for the project, since no space in the basement would be required for loading. The rate structure, as required, would favor short-term parkers, as with the project.

This alternative would provide employment for about 893 new employees, compared to 988 new employees for the proposed project. It would generate a demand for about 87 new dwelling units in San Francisco, based on OAHPP, compared to 96 for the project.

Transportation, energy and air quality impacts associated with on-site uses would be about ten percent less than those of the proposed project. Noise impacts would be as for the project. Any effect on cultural resources would be the same as the project.

SPONSOR'S REASONS FOR REJECTION

The project sponsor has rejected this alternative because he does not consider that the 15 ft. setback on the eastern facade is necessary because the 21 ft. tall 100 First St. sun terrace is immediately adjacent to the project site on the east and it is not likely that there will be any other development there. The sponsor considers the 3 ft. 3 in. encroachment of the project into the required setback on the western facade to be minor, and considers the compensating setbacks, to be more successful visually than a strictly complying setback.

C2: NO EXCEPTION TO BUILDING CODE FIVE FOOT SETBACK FROM EAST PROPERTY LINE

The San Francisco Building code requires a five-foot setback from interior property lines for building walls, with windows, for fire safety reasons. Walls with windows can only be constructed at the property line with an easement from the adjacent property owner. The project would require such an easement; this alternative would not. This alternative would include 245,000 sq. ft. of office and 5,000 sq. ft. of retail, and 6,400 sq. ft. of open space (compared with 255,010 sq. ft., 5,000 sq. ft. and 5,700 sq. ft., respectively, with the project). The FAR of this alternative would be about 14:1, compared to 15.6:1 for the project. It would be a 23-story, 300 foot tall building, like the project. This alternative would require 98,120 sq. ft. of TDR, compared to 108,130 sq. ft. for the project. This alternative would have a maximum length of 140 ft. in the upper tower (compared to 145 ft. for the project) and would require an exception to City Planning Code bulk limits, and to the separation of towers setback from Shaw Alley. Other features of this alternative would be as for the project.

DISTINCTIVE ENVIRONMENTAL EFFECTS OF ALTERNATIVE

This alternative would be the same as the project in height and design elements and, therefore, would have the same visibility in mid- and long-range views and the same

design elements and relationship to Master Plan Urban Design policies. The area of retail and parking would be the same as the proposed project; office space would be about five percent less than with the project.

Shadow and wind effects would be the same or less than those of the project.

As with the project, this project would comply with City Planning Code requirements for childcare, art and open space.

Off-street loading space standards in the Code would require two spaces for this alternative, which would be provided in the same manner as those on the ground floor of the proposed project. This alternative design would have 40 new parking spaces on the basement level, as for the project. The rate structure, as required, would favor short-term parkers, as with the project.

This altenative would provide employment for about 950 new employees, compared to 988 new employees for the proposed project. It would generate a demand for about 93 new dwelling units in San Francisco, based on OAHPP, compared to 96 for the project.

Transportation, energy and air quality impacts associated with on-site uses would be about five percent less than those of the proposed project. Noise impacts would be as for the project. Any effect on cultural resources would be the same as the project

SPONSOR'S REASONS FOR REJECTION

The project sponsor has not rejected this alternative, he is considering including the five-foot setback required by the Building Code in the project if no easement were obtained for lot line windows on the east property line.

D. ALTERNATIVE D: NO PARKING

DESCRIPTION OF ALTERNATIVE

This alternative would have no parking spaces (the project would have 40); other uses, building dimensions, design elements and floor areas would be as for the project. The basement level would contain only service/mechanical space and two service vehicle loading spaces.

DISTINCTIVE ENVIRONMENTAL EFFECTS OF ALTERNATIVE

All impacts of this alternative would be as for the project (land use, urban design, shadow, wind, cultural resources, construction noise, employment and growth inducement), other than traffic and air quality impacts on local intersections (traffic impacts on local intersections as a result of the project would not change levels of service at nearby intersections or freeway on-ramps, or measurably effect air quality). This alternative would result in no traffic from the site (and thus even less effect than the project at local intersections.

SPONSOR'S REASONS FOR REJECTION

The project sponsor has rejected this alternative because he feels the parking proposed with the project would be an asset to the building. Also, because the 40 short-term valet parking spaces would help meet the demand for short-term parking attributable to the project on-site, without disruption to transportation or transit in the project vicinity.

Table 13, p. 148, compares the alternatives B, C1 and C2 to the project. (Note that Alternative D would be the same as for the project, except that of the total area given on the Parking, Mechanical and Storage (sq. ft.) line, which total would remain the same, the portion due to parking in the project, would be storage with this alternative.)

TABLE 13: SUMMARY COMPARISON OF PROJECT WITH ALTERNATIVES B, C1 AND C2

	Proposed Project, 15.6:1 FAR 300 ft.	Alt. B 9:1 FAR 200 Ft.	Alt. C1 14:1 FAR 300 Ft.	Alt. C2 14:1 FAR 300 Ft.
Use Areas				
Office (sq. ft.)	255,010	146,525	229,550	245,000
Retail (sq. ft.)	5,000	7,470	5,000	5,000
Parking, Mechanical and Storage (sq. ft.)	23,000	36,540	23,000	23,000
Total Gross Floor Area	295,650	190,535	270,190	285,640
Number of Floors	23	12	23	23
Required Open Space (sq. ft.)	5,100	2,930	4,591	4,900
Provided: On-Site	5,700	2,025	7,200	6,400
Off-Site	0	905	0	0
Total	5,700	2,930	7,200	6,400
Relationship to Downtown Plan Bulk Requirements				
Needs Tower Separation Setback Exceptions (Chart A)	Yes	Yes	No	Yes
Needs Bulk Exception	Yes	No	No	Yes
Other Features				
Child care	Yes	Yes	Yes	Yes
Art	Yes	Yes	Yes	Yes
Need TDRs	Yes	No	Yes	Yes
(amount sq. ft.)	108,130		82,670	98,120
Shadows on: Fremont Plaza	No	Same	Same	Same
Golden Gate University Plaza	Yes	Same	Same	Same
100 First St. Sun Terrace	Yes	More	Same	Same
Project open space	Yes		Same	Same
Housing units required - OAHPP	96	55	87	93
Potential Jobs	988	583	893	950

SOURCE: Environmental Science Associates, Inc., and Heller & Leake

VIII. EIR AUTHORS AND CONSULTANTS: ORGANIZATIONS AND PERSONS CONSULTED

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X. APPENDICES

TABLE OF CONTENTS

DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET • SAN FRANCISCO, CALIFORNIA 94102

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: March 21, 1986

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister Street - 6th Floor, San Francisco, CA 94102

Agency Contact Person: Carol Roos **Telephone:** (415) 558-5261

Project Title: 84.403E: 535 Mission Street Office Building

Project Sponsor: Bredero-Northern

Project Contact Person: Courtney Seeple

Project Address: 531-539 Mission Street, south side between First and Second Streets at Shaw Alley

Assessor's Block(s) and Lot(s): Lots 68 and 83, in Assessor's Block 3721

City and County: San Francisco

Project Description: Demolition of two buildings (three and four stories; at 531 Mission Street and 535-539 Mission Street). Construction of a 315-ft.-tall, 24-story building with about 266,150 sq. ft. of office, 5,400 sq. ft. of retail, 5,500 sq. ft. of open space, 40 parking spaces in a basement, and four freight- and service-vehicle loading spaces. Requiring building permit (building permit application no. 8409150 S).

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and the following reasons, as documented in the Environmental Evaluation (Initial Study) for the project, which is attached.

Please see attached Initial Study

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: March 31, 1986.

An appeal requires: 1) a letter specifying the grounds for the appeal, and;
2) a $35.00 filing fee.

Barbara W. Sahm

Barbara W. Sahm, Environmental Review Officer

ASB: BWS: eh
3362A

ER5 4/84

535 Mission Street
Initial Study
84.403E

I. PROJECT DESCRIPTION

The proposed project would be the construction of a 24-story, 315-ft.-tall 332,230-gross-sq.-ft. office building on the south side of Mission St. between First and Second Sts. at Shaw Alley (see Figure 1, p. A-4) after demolition of the two existing site buildings.

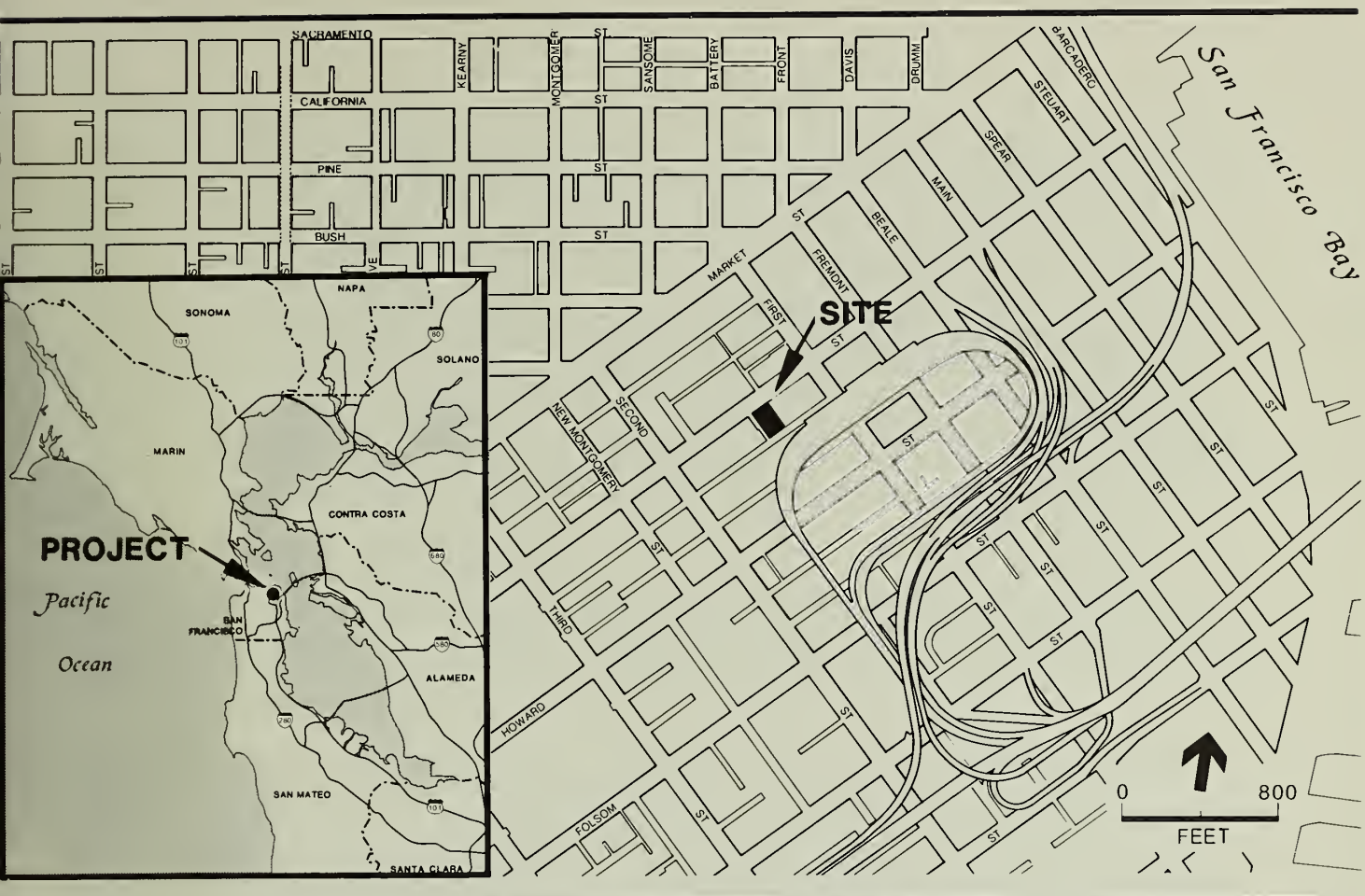
The proposed building would be about 280 ft. to a mechanical level that would extend about 35 ft. higher, for a total height of about 315 ft. (see Figure 2, p. A-5). The building would contain a basement parking level with 40 spaces, a ground-floor lobby with retail space, a service level, 21 office floors and a mechanical penthouse. The project would include about 266,150 gross sq. ft. (gsf) of office space, and about 5,400 gsf of ground floor retail space. The second floor would contain, in addition to office space, about 5,500 sq. ft. of open space in an amphitheater and a sun terrace which would be integrated with the adjacent 100 First St. sun terrace. The basement level would contain two service vehicle loading spaces. Two truck loading bays at grade would be accessible directly from Minna St. and basement van loading and parking would be accessible by a ramp adjacent to the loading bays. The Floor Area Ratio (FAR) on the project site would be about 16.3:1. The project would incorporate about 119,270 sq. ft. of transferred development rights (TDRs) from as yet unidentified sites.

The project sponsor is Bredero-Northern of San Francisco. The project architect is Heller & Leake of San Francisco.

The 16,320-sq.-ft. site includes Lots 68 and 83 of Assessor's Block 372I. The site is in the C-3-O (Downtown Office) Use District, and the 550-S Height and Bulk District. The basic allowable Floor Area Ratio is 9:I.

North across Mission St. from the site is Golden Gate University; to the east at the southeast corner of First and Mission Sts. is the Transbay Terminal. Adjacent to the site on the east, a 26-story building is under construction at 100 First St. (83.331E). The garage adjacent to the project site on the east will be roofed and developed with a sun terrace as part of the 100 First St. development. As noted, the project open space would be joined to the 100 First St. sun terrace. Four office developments are under construction or proposed in the project vicinity (see Figure 1). They include 100 First St. (under construction) and three proposed buildings: 526 Mission St., at the northwest corner of First and Mission Sts.; One Second St. at Second and Stevenson Sts.; and 524 Howard St. between First and Second Sts.

The site is occupied by two structures: the three-story, 53I Mission St. building on the east part of the site, is occupied by three businesses (two business equipment sales firms and a consulting business); and the four-story, 535-539 Mission St. building on the west part of the site, has two tenants (a toy store and a drapery business). The two buildings contain about 82,500 gross sq. ft.II. The project would thus add 262,325 net new sq. ft. of office, and would decrease the amount of retail by 15,840 sq. ft., the amount of light manufacturing by 18,540 sq. ft., the amount of downtown support by 19,800 sq. ft., and the amount of storage by 17,880 sq. ft. The 40 parking spaces would be a new use on the site.



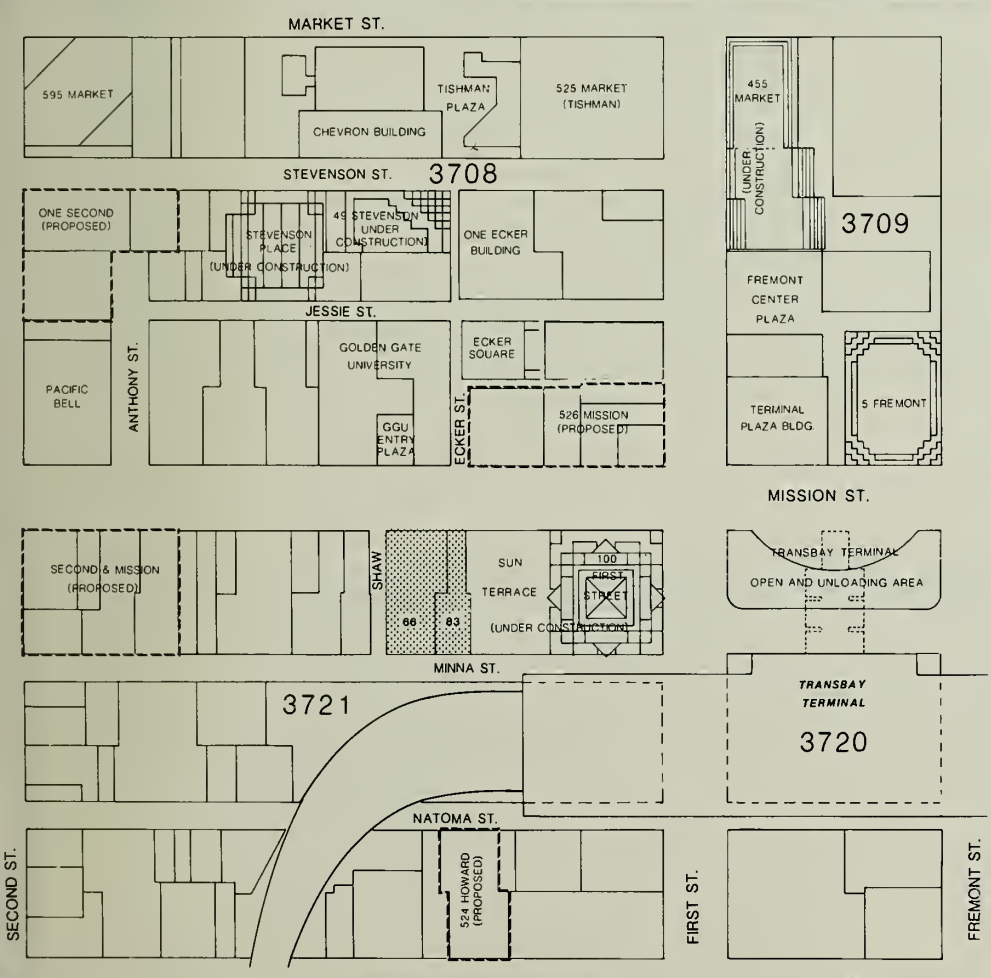


FIGURE 1
535 MISSION
PROJECT LOCATION

SOURCE: ESA

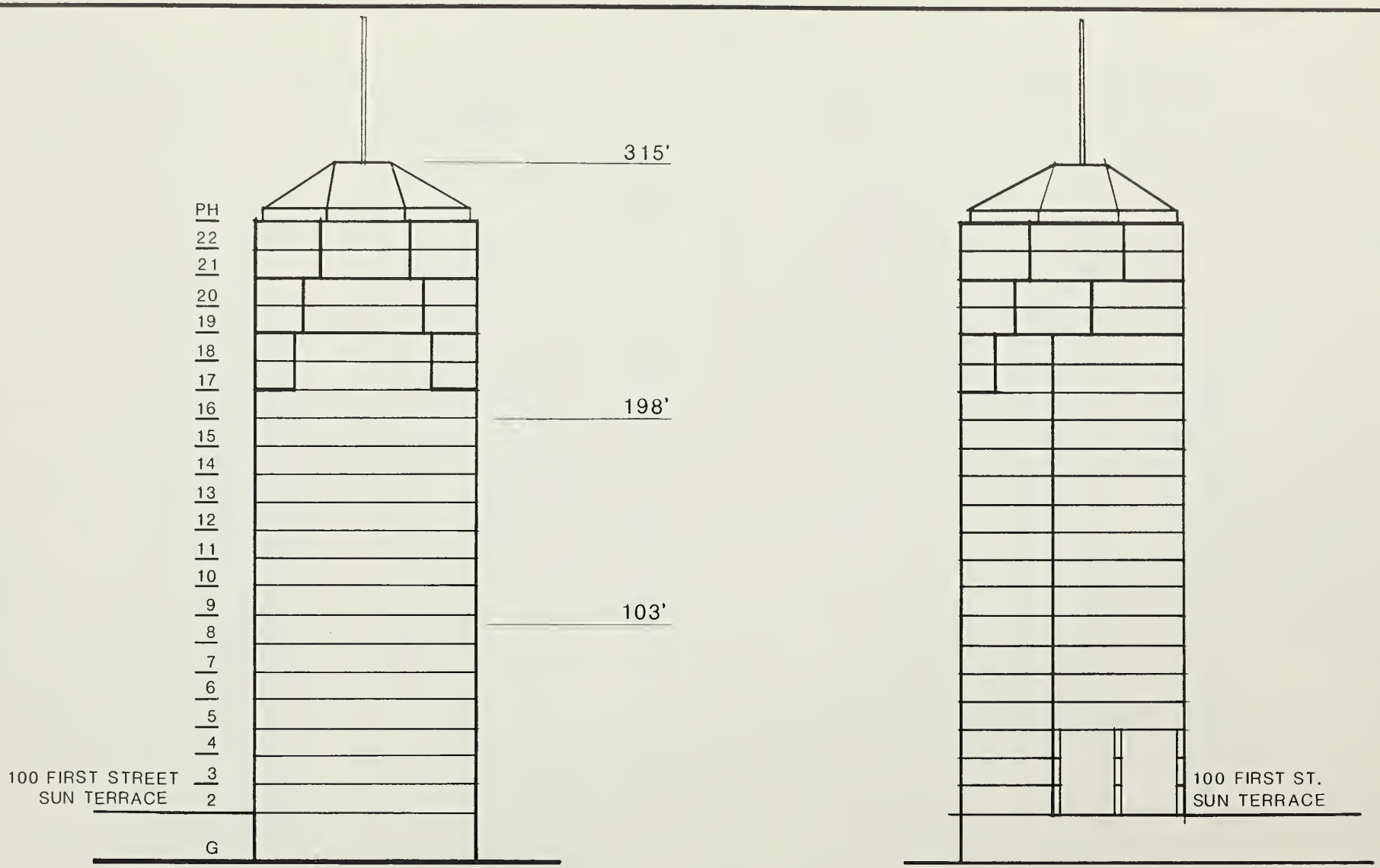


FIGURE 2
535 MISSION
MISSION AND MINNA STREETS ELEVATIONS

SOURCE: HELLER & LEAKE

INTRODUCTION

This Initial Study has been revised in compliance with the law and to provide a basis for tiering the required environmental impact report. A tiered EIR will be prepared for the proposed 535 Mission St. project, pursuant to Sections 21093 and 21094 of the Public Resources Code, California Environmental Quality Act (CEQA). The EIR will be tiered from the Downtown Plan EIR (EE81.3, certified October 18, 1984) and will analyze project-specific impacts. The EIR will discuss potentially significant effects that were not examined in the Downtown Plan EIR and will include applicable mitigation measures for site specific effects. Cumulative impacts of the development forecast in the C-3 districts to the year 2000 are addressed in the Downtown Plan EIR. That cumulative analysis will not be repeated in the EIR for this project. The Downtown Plan EIR may be examined at the Department of City Planning, 450 McAllister St.; the San Francisco Main Library; and various branch libraries.

Tiered Environmental Impact Report

Where a prior environmental impact report has been prepared and certified for a program, plan, policy or ordinance, the lead agency for a later project that meets the specified requirements is required (as of January 1, 1986) to examine significant effects of the later project upon the environment, with exceptions, by using a tiered report.

Agencies are required to tier EIRs which they prepare for separate but related projects including general plans, zoning changes and development projects, in order to avoid repetitive discussions of the same issues in successive EIRs and ensure that EIRs prepared for later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate on environmental effects which may be mitigated or avoided in connection with the decision on each later project. Tiering is appropriate when it helps a public agency to focus on the issues ripe for decision at each level of environmental review and in order to exclude duplicative analysis of environmental effects examined in previous environmental impact reports. Environmental impact reports shall be tiered whenever feasible, as determined by the lead agency.

The law directs that where a prior EIR has been prepared and certified as noted above, the lead agency shall examine significant effects of the later project on the environment by using a tiered EIR, except that the report on the later project need not examine those effects which were either mitigated or avoided as a result of the prior EIR, or, examined at a sufficient level of detail in the prior EIR to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

The Initial Study is to assist the lead agency in making the determinations required for tiering.

On August 9, 1985, an Initial Study was published and a determination made that an EIR was required for development proposed at the project site. That proposal, by the same sponsor, would not be consistent with the Downtown Plan and related requirements of the Planning Code in that it would have had an FAR of 26.9:1. Under the Downtown Plan and Code, the FAR of any development in the C-3 districts may not exceed 18:1. Because the earlier design would have been inconsistent with the Downtown Plan for which the Downtown Plan EIR was prepared and certified, it would not meet this requirement for analysis in a tiered EIR.

The proposal has been redesigned to be consistent with the Downtown Plan, and thus it now meets this requirement for a tiered EIR. This document supersedes the previous Initial Study. This Initial Study examines the potential environmental effects of the revised project and the bases for analysis of those effects in a tiered EIR.

III. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

The proposed project is examined in this Initial Study to identify potential effects on the environment. The cumulative impacts of growth in the C-3 districts to the year 2000 were adequately analyzed in the Downtown Plan EIR. That analysis of cumulative impacts remains current and valid and the determination during certification of that EIR regarding significant effects remains unchanged. Some project-specific potential effects have been determined to be potentially significant, and will be analyzed in an environmental impact report (EIR). They include: the relationship of the proposed building to the Master Plan, the relationship of the proposed building to, and its effects on, land use in the project vicinity; urban design; visual quality; shadow and wind; project-related transportation; traffic-generated air quality effects; construction noise; project-related employment; and architectural and cultural resources.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential impacts were determined either to be insignificant or to be mitigated through measures included in the project. These items require no further environmental analysis in the EIR:

Glare: The project would not be faced in any mirrored materials (see the mitigation measure on p. A-22).

Housing: The project would comply with the Office Affordable Housing Production Program ordinance. Cumulative and indirect effects including those of the project are addressed in the EIR prepared for the Downtown Plan.

Operational Noise: After completion, building operation and project-related traffic would not perceptibly increase noise levels in the project vicinity. Operational noise would be regulated by the San Francisco Noise Ordinance, and the project would conform to the Noise Guidelines of the Master Plan.

Construction Air Quality: Construction of the project would have short-term effects on air quality in the project vicinity. A mitigation measure to reduce particulate and hydrocarbon emissions generated during construction activities to insignificant levels is included in the project (see p. A-22).

Utilities/Public Services: The proposed project would increase demand for utilities and public services, but would not require additional personnel or equipment.

Biology: The proposed project would not affect plants or animals, as the site is completely covered by buildings.

Geology/Topography: A preliminary geotechnical report has been prepared for the project and a final detailed geotechnical report would be prepared by a California-licensed engineer prior to commencement of construction. The project sponsor and contractor would follow recommendations made in the final report regarding any excavation and construction on the site. Measures to mitigate potential impacts associated with excavation and dewatering are included in the project (see pp. A-22 to A-23).

Water: The proposed project would use an average of about 20,200 gallons of water per day. The project would not affect drainage patterns or water quality, because the site is now covered entirely by impermeable surfaces. See also the mitigation measures discussed above regarding excavation and dewatering.

Energy: The project would be designed to surpass performance standards of Title 24 of the California Administrative Code. Its annual energy budget would be about 90,000 Btu per sq. ft. Peak electrical energy and natural gas use would coincide with PG&E's systemwide peaks. Cumulative and indirect effects including those of the project are addressed in the EIR prepared for the Downtown Plan. Energy consumption mitigation measures would be included as part of the project (see p. A-23).

Hazards: The project would neither cause health hazards, nor be affected by hazardous uses. Mitigation measures to reduce any conflicts with the City's Emergency Response Plan are included in the project (see pp. A-23 to A-24).

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS	N/A	Discussed
1. Discuss any variances, special authorization, or changes proposed to the City Planning Code or Zoning Map, if applicable.	___	X
* 2. Discuss any conflicts with the Comprehensive Plan of the City and County of San Francisco, if applicable.	___	X
* 3. Discuss any conflicts with any other adopted environmental plans and goals of the City or Region, if applicable.	___	X

The project would be consistent with the Downtown Plan (with allowable exceptions -- see below) and the zoning for the site, and would thus meet this requirement for a tiered EIR. The project would require exceptions to the Downtown Plan Planning Code, under Section 309 of the Code, regarding setbacks. The project's relationship to the Downtown Plan and Planning Code will be discussed in the EIR.

The project would not conflict with adopted environmental plans or goals.

B. ENVIRONMENTAL EFFECTS. Could the project:	Yes	No	Discussed
1. Land Use			
* a. Disrupt or divide the physical arrangement of an established community?	___	X	___
b. Have any substantial impact upon the existing character of the vicinity?	X	___	X

The project would be an intensification and expansion of existing office uses, and would replace the office-support type of uses on the site. The project's relationship to area land uses will be discussed in the EIR.

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* Derived from State EIR Guidelines, Appendix C, normally significant effect.

		Yes	No	Discussed
2. Visual Quality. Could the project:				
*	a. Have a substantial, demonstrable negative aesthetic effect?	X		X
	b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?		X	X
	c. Generate obtrusive light or glare substantially impacting other properties?		X	X

The project's appearance and possible effects on views will be discussed in the EIR. Mirrored glass would not be used in the project; the building would not result in glare affecting other properties. (See the mitigation measure on p. A-22.) The EIR will, therefore, not discuss glare.

		Yes	No	Discussed
3. Population. Could the project:				
*	a. Induce substantial growth or concentration of population?		X	X
*	b. Displace a large number of people (involving either housing or employment)?		X	X
	c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?		X	X

Project specific employment information regarding number and type of employees on the site, with existing conditions and with the project, will be included in the EIR.

The project would generate a demand for 96 dwelling units according to the Office Affordable Housing Production Program formula. The project must comply with the OAHPP, Ordinance No. 358-85. Cumulative and indirect effects including those of this project are addressed, and may be found, in the Downtown Plan EIR. That analysis will not be repeated in the 535 Mission St. EIR.

The Downtown Plan EIR concluded that population effects resulting from development in the C-3 districts under the Downtown Plan would not be significant. That conclusion would remain true with the project. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister St., 6th Floor; the San Francisco Main Library; and various branch libraries.

		Yes	No	Discussed
4. Transportation/Circulation. Could the project:				
*	a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?		X	X
	b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?		X	X
	c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?		X	X
	d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	X		X

The project would provide 40 parking spaces where none now exist. With this number of parking spaces, localized traffic impacts from the project would not be expected to be measurably worse with the project than with existing conditions. However, the localized transportation impacts of the project will be analyzed in the EIR.

The cumulative transportation effects of development in the C-3 districts including the project are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative transportation impacts would have a significant impact. The cumulative analysis in the Downtown Plan regarding transportation will be incorporated by reference into the 535 Mission St. EIR, and the project effects in relation to cumulative impacts will be discussed. The analysis in the Downtown Plan EIR remains current regarding future and project conditions.

		Yes	No	Discussed
5. Noise. Could the project:				
* a.	Increase substantially the ambient noise levels for adjoining areas?	__	X	X
b.	Violate Title 25 Noise Insulation Standards, if applicable?	__	X	X
c.	Be substantially impacted by existing noise levels?	__	X	X

Demolition, excavation and building construction would temporarily increase noise in the site vicinity. Project construction noise and its possible effects on sensitive receptors will be addressed in the EIR.

The noise environment of the site, like all of downtown San Francisco, is dominated by vehicular traffic noise. The Downtown Plan EIR indicates a day-night average noise level (Ldn) of 72 dBA on Mission St. adjacent to the site in 1984./1,2/ The Environmental Protection Element of the San Francisco Master Plan contains guidelines for determining the compatibility of various land uses with different noise environments. For office uses the guidelines recommend no special noise control measures in an exterior noise environment up to an Ldn of 70 dBA. For noise levels of 75 dBA and above, the guidelines recommend an analysis of noise reduction requirements and inclusion of noise insulation features in the building design. The project sponsor has indicated that noise insulation measures would be included as part of the design (see p. A-22). The proposed structure would not include housing, so State Title 25 Noise Standards would not be applicable.

Project operation would not result in perceptibly greater noise levels than those existing in the area. The amount of traffic generated by the project during any hour of the day, and cumulative traffic increases at the time of project completion, would cause traffic noise levels to increase by one dBA or less. To produce a noticeable increase in environmental noise, a doubling of existing traffic volume would be required; traffic increases of this magnitude would not occur with anticipated cumulative development including the project./3/

The project would be required to comply with the San Francisco Noise Ordinance, San Francisco Police Code Section 2909, "Fixed Source Noise Levels," which regulates mechanical equipment noise. The project site and surrounding area are within a C-3-0 district. In this district, the ordinance limits equipment noise levels at the property line to 70 dBA between 7 a.m. and 10 p.m. and 60 dBA between the hours of 10 p.m. and 7 a.m. During lulls in traffic, mechanical equipment generating 70 dBA could dominate the noise environment at the site. The project engineer and architect would include design features in the building to limit mechanical equipment noise levels to 60 dBA. As equipment noise would be limited to 60 dBA to meet the nighttime limit, it would not be

perceptible above the ambient noise levels in the project area; operational noise requires no further analysis and will not be included in the EIR.

NOTES - Noise

/1/ San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Vol. 1, Table IV.J.2.

/2/ dBA is a measure of sound in units of decibels (dB). The "A" denotes the A-weighted scale, which simulates the response of the human ear to various frequencies of sound.

Ldn, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises; noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/3/ See Downtown Plan EIR (EE81.3) Vol. 1, Continuous Section IV.E. generally and Section IV.J., pp. IV.J.8-18. Increases of 1 dBA or less in environmental noise are not noticeable by most people outside a laboratory situation (National Academy of Sciences, Highway Research Board, Research Report No. 117 (1971)). See also FHWA Highway Traffic Noise Prediction Model, Report #FHWA-RD-77-108, December 1978, p. 8, regarding doubling of traffic volumes producing increases of 3 dBA or more, which are noticed by most people.

6. Air Quality/Climate. Could the project:	Yes	No	Discussed
* a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	__	X**	X
* b. Expose sensitive receptors to substantial pollutant concentrations?	__	X	X
c. Permeate its vicinity with objectionable odors?	__	X	__
d. Alter wind, moisture or temperature (including sun shading effects), so as to substantially affect public areas, or change the climate either in the community or the region?	X	__	X

Demolition, grading and other construction activities would temporarily affect local air quality for about 18 months, causing a temporary increase in particulate dust and other pollutants. Dust emissions during demolition and excavation would increase particulate concentrations near the site. Dustfall can be expected at times on surfaces within 200 to 800 ft. Under high winds exceeding 12 miles per hour, localized effects including human discomfort might occur downwind from blowing dust. Construction dust is composed primarily of large particles that settle out of the atmosphere more rapidly with increasing distance from the source. More of a nuisance than a hazard for most people, this dust could affect persons with respiratory diseases as well as sensitive electronics or communications equipment. The project sponsor would require the contractor to wet down the construction site twice a day during construction to reduce particulates by at least 50% (see p. 25).

** The site specific traffic impacts created by this project are not expected to be significant, as noted in the earlier discussion. However, the localized air quality effects of the project will be discussed in the EIR.

Diesel-powered equipment would emit, in decreasing order by weight, nitrogen oxides, carbon monoxide, sulfur oxides, hydrocarbons, and particulates. This would increase local concentrations temporarily but would not be expected to increase the frequency of violations of air quality standards. The project sponsor would require the project contractor to maintain and operate construction equipment in such a way as to minimize exhaust emissions (see p. A-22). Construction air quality effects require no further analysis.

The cumulative effects on air quality of traffic emissions from traffic generated by development in the C-3 districts, including the project, are analyzed in the Downtown Plan EIR. The Planning Commission in certifying the Downtown Plan EIR determined that cumulative air quality effects would have a significant impact. The cumulative analysis in the Downtown Plan EIR regarding air quality will be incorporated by reference and the project effect in relation to cumulative effects will be discussed. The analysis and conclusions of the Downtown Plan EIR remain current regarding future and project conditions.

Existing buildings on the site are two and three stories. There are a number of publicly accessible open spaces in the project vicinity. For example, Golden Gate University, with terrace seating areas and an entry plaza, is north across Mission St. from the site. The Fremont Center plaza is northeast and across Mission and First Sts. from the site. Tishman Plaza is located at the north end of Ecker St. in the block north of the project site. The proposed building's shading effect on these open spaces, the passenger unloading and open area in front of the Transbay Terminal (a portion of which is planned as public open space), and sidewalks and structures near the project, will be discussed in the EIR. Shadows on the adjacent publicly accessible garage rooftop sun terrace and the project's open space will also be discussed. The analysis will include sun path and shadow diagrams.

Section 148 of the Planning Code establishes comfort criteria of 11 mph equivalent wind speed for pedestrian areas and 7 mph for seating areas, not to be exceeded more than 10% of the time, year-round between 7:00 a.m. and 6:00 p.m. In order to determine the wind effects of the project and its compliance with the Downtown Plan wind criteria, wind tunnel tests will be conducted. The analysis of project wind effects will be discussed in the project EIR.

7. Utilities/Public Services. Could the project:	Yes	No	Discussed
* a. Breach published national, state or local standards standards relating to solid waste or litter control?	__	X	__
* b. Extend a sewer trunk line with capacity to serve new development?	__	X	X
c. Substantially increase demand for schools, recreation or other public facilities?	__	X	X
d. Require major expansion of power, water, or communications facilities?	__	X	X

The Downtown Plan EIR concluded that demand for utilities and public services resulting from development in the C-3 districts under the Downtown Plan would not be significant. The project would fall within this development forecast. The Downtown Plan EIR analysis remains current and valid for future and project conditions. The Downtown Plan EIR (EE81.3, Final EIR, certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister St., 6th Floor; the San Francisco Main Library and various branch libraries. This topic requires no further analysis in the EIR.

8. Biology. Could the project:	Yes	No	Discussed
* a. Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	__	X	__
* b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	__	X	X
c. Require removal of substantial numbers of mature, scenic trees?	__	X	__

The site is covered by impervious surfaces. The project would not affect plant or animal habitats. This topic will not be discussed in the EIR.

9. Geology/Topography. Could the project:	Yes	No	Discussed
* a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	__	X	X
b. Change substantially the topography or any unique geologic or physical features of the site?	__	X	__

The project site is at one ft., San Francisco City Datum (SFD)./1/ Soils at the site are composed of a mixture of man-made fill and natural dune sand in the uppermost layers to natural deposits of dense to very dense sands, silts and clays at the lower layers. The upper 15 to 23 ft. of soil is primarily loose to medium-dense dune sand (to about -10 ft. SFD) and very dense sand (below the medium dense sand layer) which is underlain by 18 to 22 ft. of silts and clays mixed with varying amounts of sand. Below this latter layer are 35 ft. and more of very dense sands and clays with occasional dense silt. Below this level is sand mixed with varying amounts of silt and clay. Bedrock was not encountered; however, published geologic data indicate that bedrock is believed to exist at a depth of approximately 250 ft. below street grade./2/ Groundwater was encountered at about 13 ft. below sidewalk grade one day after test drilling./2/

Excavation for the project foundation and basement parking garage would be conducted to a depth of about -10 ft. SFD. This would be to about the same depth as the existing basements on the site. A pile foundation is proposed.

Dewatering may be required during excavation, especially in the area of pile caps. Dewatering could cause some settlement of nearby buildings. The project would include measures to mitigate this potential impact (see pp. A-22 to A-23).

Pit walls would be shored up to prevent lateral movement during excavation. Adjacent structures might need to be underpinned, should excavation go below the base of their foundations, to avoid such damage as cracking of walls or foundations or sagging of floors. The building contractor must comply with the San Francisco Building Code and the Excavation Standards of the California Occupational Safety and Health Agency. Pre-construction surveys of adjacent streets and buildings would be conducted if so recommended in the final soils report and would determine what measures, if any, would be needed to protect these structures.

Loose man-made fill and sand are low-quality foundation supporting soils. To avoid building settlement and similar problems encountered when building on this type of soil, the project foundations would include use of precast concrete piles driven to dense sands below the loose man-made fill and sand layers to support the structure. Vibration and noise effects of pile driving on adjacent uses will be addressed in the EIR.

The closest active faults to San Francisco are the San Andreas Fault, about 9 miles southwest of Downtown, and the Hayward and Calaveras Faults, about 15 and 30 miles east of Downtown, respectively. The project area would experience Very Strong (Intensity Level C, masonry badly cracked with occasional collapse, frame buildings lurched when on weak underpinning with occasional collapse) groundshaking during a major earthquake./3/ The site is not within an area of liquefaction or subsidence./4/ It is not within an area of potential tsunami or seiche flooding./5/

The project sponsor would follow the recommendations of structural and foundation reports to be prepared for the project for any excavation and construction on the site. The building must meet current seismic engineering standards of the San Francisco Building Code which include earthquake-resistant design and materials. The Code is designed to allow for some structural damage to buildings but not collapse during a major earthquake (see also the mitigation measures on p. A-25 for the project's emergency response plan).

The project would replace two buildings on the site built prior to current seismic code standards, and therefore generally more susceptible to earthquake damage.

The project would not have a substantial effect on geology or topography; this topic requires no further discussion in the EIR.

NOTES - Geology/Topography

/1/ San Francisco City Datum establishes the City's "0" point for surveying purposes at approximately 8.6 feet above mean sea level.

/2/ Harding Lawson Associates, August 30, 1984, Preliminary Geotechnical Soils Investigation, 535 Mission Street Building, available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St. A final report will be prepared for the project.

/3/ URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, 1974. Groundshaking intensities that would result from a major earthquake were projected and classified on a five-point scale ranging from E (Weak) through A (Very Violent).

/4/ Liquefaction is the transformation of granular material, such as loose, wet sand, into a fluid-like state similar to quicksand. Subsidence is a lowering of the ground surface from settlement of fill or alluvium. This can occur from groundshaking, withdrawal of groundwater, or other causes.

/5/ A.W. Garcia and J.R. Houston, Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Federal Insurance Administration, Department of Housing and Urban Development, November 1975. Maximum flood elevations for earthquake-induced tsunamis have been estimated to be about elevation -3.5 ft. for a 100-year event and 0.5 ft. for a 500-year event (elevations from San Francisco Datum, 8.64 ft. above mean sea level), both of which would be below site grade.

		Yes	No	Discussed
10. Water. Could the project:				
* a.	Substantially degrade water quality, or contaminate a public water supply?	__	X	X
* b.	Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	__	X	X
* c.	Cause substantial flooding, erosion or siltation?	__	X	__

As discussed above, excavation depth might be below the groundwater level, and dewatering could be required, especially in the area of pile caps. Dewatering could produce some localized subsidence, which could damage streets or older buildings in the immediate site vicinity. The sponsor has agreed to measures to mitigate effects of dewatering (see pp. A-22 to A-23). Site runoff would drain into the City's combined sanitary and storm sewage system. The project would not affect drainage patterns or water quality because the site is now covered entirely with impermeable surfaces. No further analysis of this topic is required in the EIR.

		Yes	No	Discussed
11. Energy/Natural Resources. Could the project:				
* a.	Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	__	X	X
b.	Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	__	X	X

Annual electric energy consumption by existing uses on the site (retail, light manufacturing, storage) is about 270,000 kilowatt hours (kWh) of electricity, equal to about 2.8 billion Btu at the source;/1,2/ natural gas use is negligible./1/

Removal of existing structures would require an unknown amount of energy. Fabrication and transportation of building materials, worker transportation, site development, and building construction would require about 510 billion Btu of gasoline, diesel fuel, natural gas and electricity./3/ Distributed over the estimated 50-year life of the project, this would be about 10 billion Btu per year, or about 36% of annual building energy requirements.

New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Administrative Code. Documentation showing compliance with these standards is submitted with the application for the building permit and is enforced by the Bureau of Building Inspection.

Table 1, p. A-16, shows the estimated operational energy which would be used by the project. Project demand for electricity during PG&E's peak electrical load periods, July and August afternoons, would be about 920 kW, an estimated 0.006% of PG&E's peak load of about 16,000 MW./4/ Project demand for natural gas during PG&E's peak natural gas load periods, January mornings, would be 12 million Btu per day, or about 0.3% of PG&E's peak load of about 3.7 billion Btu per day./4/ Annual and peak daily electricity and natural gas consumption are shown in Figures 3 and 4, pp. A-17 and A-18. Measures to reduce energy consumption are included as part of the project (see p. A-23).

TABLE 1: ESTIMATED PROJECT ENERGY USE/a/

Daily Natural Gas Consumption/b/	
Estimated natural gas consumption per sq. ft.	20 Btu/c/
Estimated peak daily natural gas consumption	120 therms
Monthly Electrical Consumption/b/	
Estimated electrical consumption per sq. ft.	0.7 kwh (7,165 Btu)/d/
Estimated total electrical consumption	227,800 kWh (2.3 billion Btu)
Annual Consumption	
Estimated total annual natural gas consumption	22,500 therms (2.24 billion Btu)
Estimated total annual electrical consumption	2.73 million kWh (28 billion Btu)
Connected kilowatt load	3,200 kilowatts
Estimated total annual energy consumption	28 billion Btu (5,000 barrels of oil)

/a/ Energy use includes space conditioning, service water heating and lighting in accordance with allowable limits under Title 24. Estimated electricity includes an additional 4 kwh/sq. ft./yr., consumed by appliances such as typewriters, computers, coffee makers, etc., than assumed by Title 24 estimates.

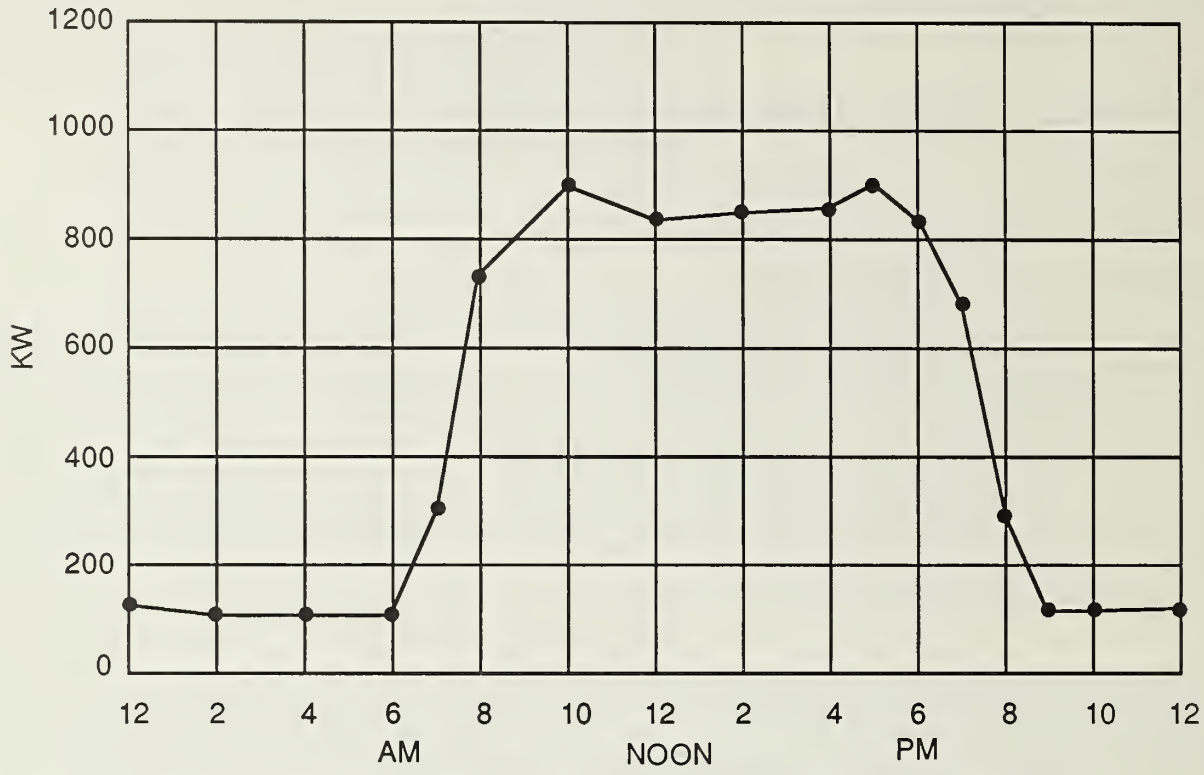
/b/ Electricity and gas consumption were calculated for the project by Glumac & Associates. These calculations are available for review at the Office of Environmental Review, 450 McAllister St.

/c/ Btu (British thermal unit): a standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit (251.97 calories) at sea level.

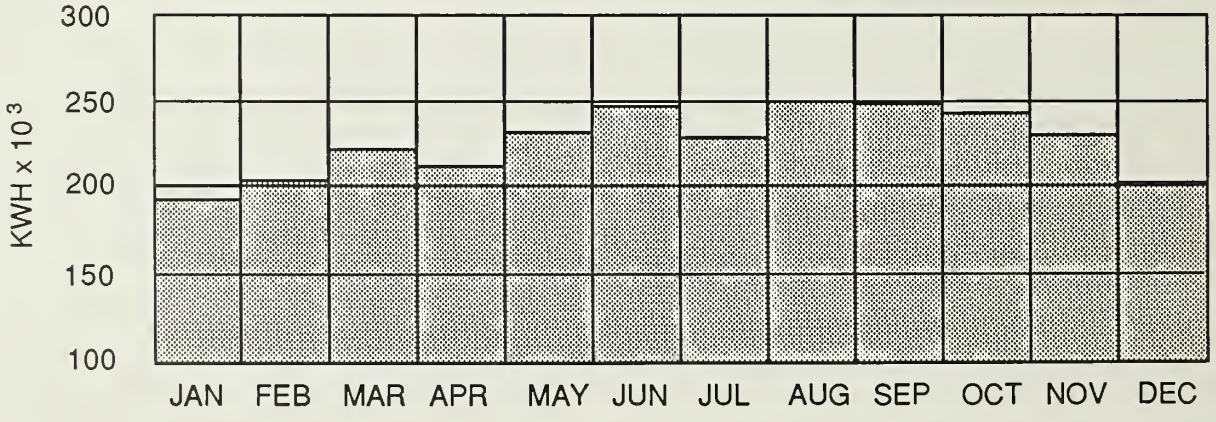
/d/ Energy Conversion Factors:
one gallon gasoline = 125,000 Btu
one kilowatt hour (kWh) = 10,239 Btu
one therm = 100,000 Btu
one cubic foot of natural gas = 1,100 Btu at source
one barrel of oil = 5,600,000 Btu

SOURCE: Glumac & Associates; ESA, Inc.; and Department of City Planning.

Project-related transportation would cause additional, off-site energy consumption. Annual project-related trips (about 97,000 auto vehicle trip ends [vte], 50,000 bus person trip ends [pte], 11,000 train pte, 8,000 ferry pte, 14,000 jitney/van/taxi/motorcycle/charter bus pte, 195,000 BART pte, and 185,000 Muni electric pte) would require about 68,000 gallons of gasoline and diesel fuel and about 0.9 million kWh of electricity



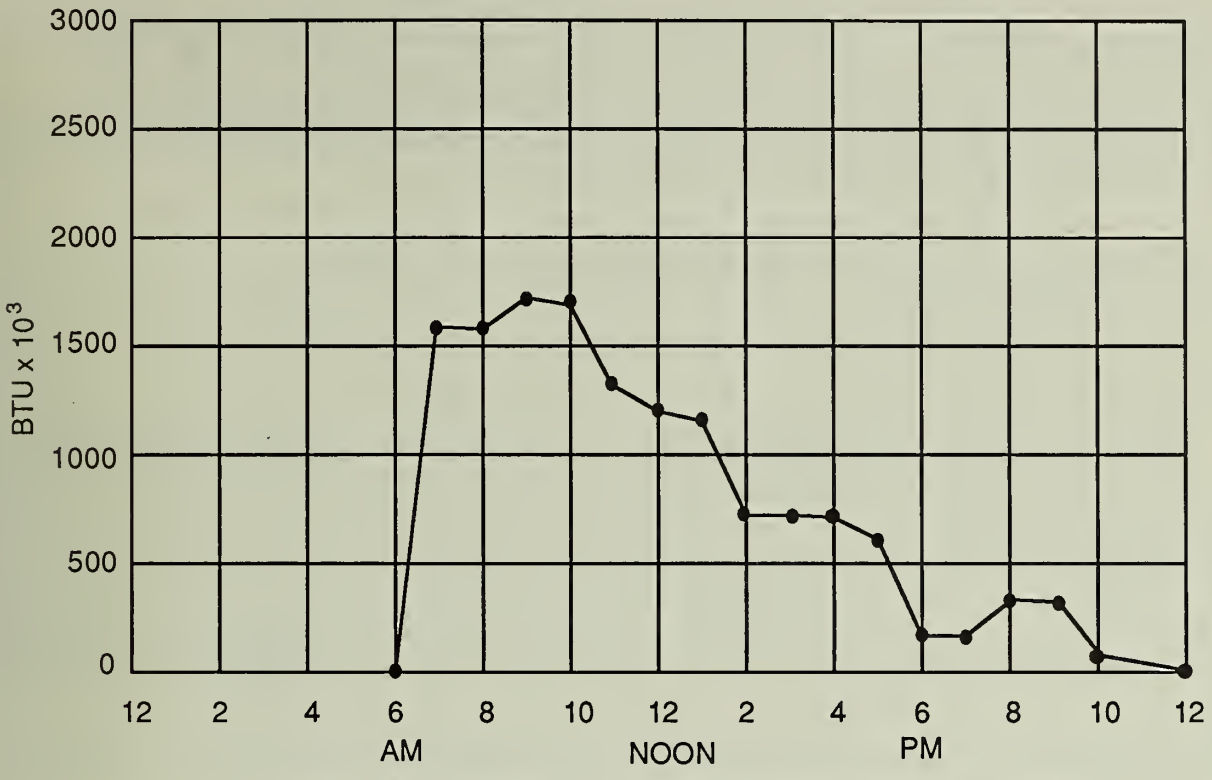
PEAK DAY ELECTRICAL LOAD DEMAND BY HOUR (AUGUST)



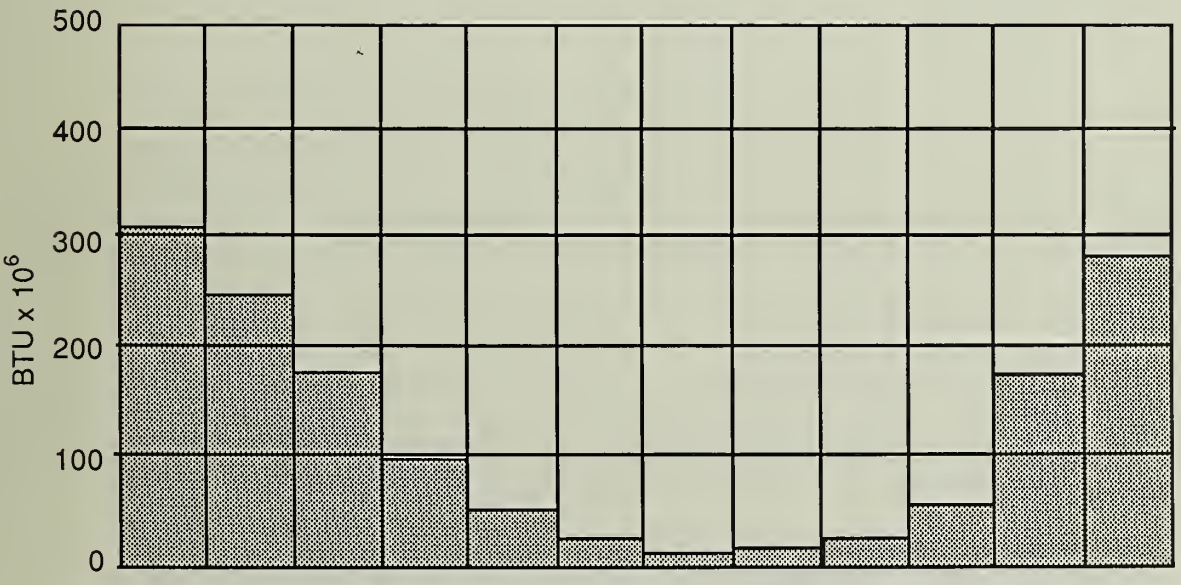
ANNUAL CONSUMPTION OF ELECTRICITY BY MONTH

FIGURE 3
535 MISSION
PROJECTED ELECTRICAL DISTRIBUTION CURVES

SOURCE: GLUMAC & ASSOCIATES



PEAK DAY NATURAL GAS DEMAND BY HOUR (JANUARY)



ANNUAL CONSUMPTION OF NATURAL GAS BY MONTH

FIGURE 4
535 MISSION
PROJECTED NATURAL GAS DISTRIBUTION

SOURCE: GLUMAC & ASSOCIATES

annually, as indicated in Table 2. These figures were calculated based on data contained in the Downtown Plan EIR. The total annual transportation energy demand, converted with at-source factors to a common thermal energy unit, would be about 18 billion Btu, the energy equivalent of 3,500 barrels of oil. This projected use is based upon the mix of highway vehicles in California in 1987. Vehicle fuel use is expected to decrease as the vehicle fleet becomes more efficient and fuel more expensive.

TABLE 2: PROJECT-RELATED ANNUAL TRANSPORTATION ENERGY CONSUMPTION/1/

	Electricity (kilowatt hours)	Gasoline (Thousands of Gallons)	Diesel (Gallons)	Total Btu (Millions)
Auto/Taxi/Jitney/Motorcycle/ Charter Bus		49.8		6,210
BART	0.8 million			8,000
Muni Electric	0.1 million			1,000
Regional Bus Systems			15,760	2,500
SPRR			2,600	420
Project Total	0.9 million	49.8	18,360	18,130

/1/ The methods used to calculate these figures are described in detail in the Downtown Plan EIR, EE81.3, certified October 18, 1984, Appendix N, and the associated data are contained in Table No. 6 of that document. Calculations are also based on vehicle miles traveled (see calculations for the project on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St.).

SOURCE: Environmental Science Associates, Inc.

Projections of electrical use for growth that would occur under the Downtown Plan, as analyzed in the Downtown Plan EIR, indicate an increase of about 330-350 million kWh per year between 1984 and 2000, as a result of all new development occurring in the C-3 district. Natural gas consumption is expected to increase by 470 million cubic ft. (about five million therms) per year during the same time period, of which 210 cubic ft. (about two million therms) per year would be for office uses.

Increased San Francisco energy demands to the year 2000 would be met by PG&E from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources, such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

The Downtown Plan EIR concluded that energy consumption resulting from development in the C-3 districts under the Downtown Plan would not be significant and that conclusion remains valid for the future and project conditions. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister St., 6th Floor; the San Francisco Main Library; and various branch libraries.

This topic, energy impacts, requires no further analysis and will not be discussed in the EIR.

Average water use is projected to be 20,200 gallons per day. This demand could be accommodated by existing supplies. This topic will not be discussed in the EIR.

NOTES - Energy

/1/ Existing energy use is based on PG&E customer billings for 1984; at-source thermal energy, given in British thermal units (Btu), is based on information received from PG&E, Technical Service Department, May 10, 1984.

/2/ The British thermal unit (Btu) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level; all references to Btu in this report are "at-source" values. The term "at-source" means that adjustments have been made in the calculation of the thermal energy equivalent (Btu) for losses in energy that occur during generation, transmission, and distribution of the various energy forms, as specified in: ERCDC, 1977, Energy Conservation Design Manual for New Non-Residential Buildings, Energy Conservation and Development Commission, Sacramento, California, and Apostolos, J.A., W.R. Shoemaker, and E.C. Shirley, 1978, Energy and Transportation Systems, California Department of Transportation, Sacramento, California, Project #20-7, Task 8.

/3/ Hannon, B., et al., 1978, "Energy and Labor in the Construction Sector," Science 202:837-847.

/4/ San Francisco Department of City Planning, Downtown Plan EIR (EE81.3), certified October 18, 1984, Vol. 1, pp. IV.G.3-4.

		Yes	No	Discussed
12.	Hazards. Could the project:			
* a.	Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	__	X	__
* b.	Interfere with emergency response plans or emergency evacuation plans?	__	X	X
c.	Create a potentially substantial fire hazard?	__	X	X

The project would increase the daytime population in downtown San Francisco. Employees in the proposed building would contribute to congestion if an emergency evacuation of the downtown area were required. An evacuation and emergency response plan would be developed as part of the proposed project (see p. A-23). The project's emergency plan would be coordinated with the City's emergency planning activities. This mitigation measure is proposed as part of the project; therefore, this topic will not be discussed in the EIR.

The increased number of persons using the site would not substantially increase the fire hazard at the site as the project would conform to the Life Safety provisions of the San Francisco Building Code, and Title 24 of the State Building Code. The Fire Department has determined that no additional fire stations would be needed to serve cumulative development unless, and until, the most major proposals came on line (such as Rincon Point/South Beach and Mission Bay)./1/ Therefore, it is not anticipated that the project would create a substantial fire hazard and this issue will not be discussed in the EIR.

NOTE - Hazards

/1/ Edward Phipps, Assistant Chief, Support Services, Letter, July 9, 1984.

		Yes	No	Discussed
13.	Cultural. Could the project:			
* a.	Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	X		X
* b.	Conflict with established recreational, educational, religious or scientific uses of the area?		X	
c.	Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?		X	X

Archival research was conducted regarding the possibility of encountering artifacts on the site./1/ The project site was filled rather than cut, and has been developed since the 1850s. A strong possibility exists that archaeological remains from the Gold Rush Period could be encountered on the site; such a find could be considered of potential archaeological and historic significance. Excavation for the proposed project would extend to about the same depth as existing basements on the site. Cultural resources will be discussed in the EIR.

The two buildings on the site would be demolished for the project. The 535-539 Mission St. (Goodyear) building is rated "C" by the Foundation for San Francisco's Architectural Heritage in its Splendid Survivors survey of historical or architecturally significant buildings in Downtown San Francisco. The building is not rated by the Department of City Planning 1976 architectural survey. It is not designated as a contributory or significant building in the Downtown Plan. The building at 531 Mission St. is not rated by either the City or Heritage, nor is it designated as a significant or contributory building in the Downtown Plan.

The Downtown Plan New Montgomery - Second Conservation District includes the buildings facing Second St. on the west face of the project block, about one-half block from the site. The project site is outside the boundaries of this district.

The project, in combination with other development proposed and under construction in the vicinity, would change the architectural setting. This topic will be discussed in the EIR.

NOTE - Cultural

/1/ Allen Pastron, Archeo-Tec, Consulting Archaeologists, April 30, 1985, "Cultural Resources Evaluation of Five South of Market Parcels, San Francisco." This report is on file and available for public review at the Office of Environmental Review, 450 McAllister St.

C. OTHER	Yes	No	Discussed
Require approval of permits from City Departments other than Department of City Planning or Bureau of Building Inspection, or from Regional, State or Federal Agencies?	__	X	__

D. MITIGATION MEASURES	Yes	No	N/A	Discussed
1. If any significant effects have been identified, are there ways to mitigate them?	X	__	__	X
2. Are all mitigation measures identified above included in the project?	__	X	__	X

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a mitigation chapter describing these measures and also including other measures which would be, or could be, adopted to reduce potential adverse effects of the project as identified in the EIR.

Visual Quality

- In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

Operational Noise

- As recommended by the Environmental Protection Element of the San Francisco Master Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. For example, such design features would include fixed windows and climate control.

Construction Air Quality

- The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day to reduce dust generation by about 50%; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil, sand, and other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce TSP emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

Geology/Topography

- A detailed foundation and structural design study would be conducted for the building by a California-licensed structural engineer and a geotechnical consultant. The project sponsor would follow the recommendations of these studies during the final design, excavation and construction of the project.

- If dewatering were necessary, any groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.

- Should dewatering be necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. Costs for the survey and any necessary repairs to service under the street would be borne by the contractor.

Water Quality

- See the second measure under Geology/Topography, above, for mitigation proposed to prevent sediment from entering storm sewers.

Energy

- The project would be more energy efficient than required by State Administrative Code Title 24. To conserve electric energy, the project would include multiple light-switching; a variable air volume air conditioning system; and an outside-air/return-air economizer cycle. A carbon monoxide monitoring system would control garage ventilation, to avoid unnecessary operation of fans.

- Natural gas would be used for space heating.

Other Measure(s)

- The sponsor is considering performing a thorough energy audit of the structure's actual energy use after the first year of occupancy and implementing all cost effective alterations to the structure's energy system identified in the audit. Results of the audit would be made available to the City. The decision whether to implement this measure would be made after completion of the building when energy use could be accurately measured and a determination of efficiency of energy consumption could be made. If it is determined that the dollar amount of energy savings that could be achieved through the alterations would cover the cost of installation, then this measure would be implemented by the sponsor.

Hazards

- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.

- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

E. MANDATORY FINDINGS OF SIGNIFICANCE	Yes	No	Discussed
*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?	__	X	__
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	__	X	__
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	X	__	X
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	__	X	__
*5. Is there a serious public controversy concerning the possible environmental effect of the project?	__	X	__

The project would contribute to cumulative effects in the areas of transportation and air quality. The EIR will incorporate by reference the analyses for air quality and transportation contained in the Downtown Plan EIR. Those analyses remain current and valid for future and project conditions.

F. DETERMINATION THAT A TIERED EIR IS REQUIRED

In light of the discussion in this Initial Study, a tiered EIR is required for this project pursuant to the requirements of Section 21094(b) as follows:

1. The project would be consistent with the Downtown Plan, policies and ordinances for which a Final EIR (EE 81.3) was certified October 18, 1984;

2. The project would be consistent with applicable local land use plans and zoning pursuant to the Downtown Plan and Planning Code, with allowable exceptions; and,

3. Section 21166 does not apply.

G. ON THE BASIS OF THIS INITIAL STUDY:

___ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

___ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers ___ in the discussion, have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

_X_ I find that the proposed project MAY have a significant effect on the environment, and a tiered ENVIRONMENTAL IMPACT REPORT is required.

Barbara W. Sahm
Environmental Review Officer

for

Dean L. Macris
Director of Planning

Date:_____

STATE AGENCIES

Northwest Information Center
California Archaeological Inventory
Christian Gerike

REGIONAL AGENCIES

Bay Area Air Quality Management District
Irwin Mussen

CITY AND COUNTY OF SAN FRANCISCO

Bureau of Building Inspection

City Attorney's Office

Landmarks Preservation Advisory Board

Mayor's Economic Development Council

Public Utilities Commission

Public Utilities Commission
Bureau of Energy Conservation

Recreation & Park Department

San Francisco Bureau of Engineering

San Francisco Department of Public Works
Bureau of Engineering

San Francisco Department of Public Works
Mechanical Engineering Section

San Francisco Department of Public Works
Traffic Engineering Division

San Francisco Fire Department

San Francisco Municipal Railway

San Francisco Real Estate Department

Water Department

GROUPS AND INDIVIDUALS

AIA San Francisco Chapter

Bay Area Council

Bendix Environmental Research, Inc.

Tony Blaczek
Finance Department Coldwell Banker

Michael V. Dyett
Blayney-Dyett

Environmental Impact Planning
Cathleen Galloway Brown

Environmental Planning & Research, Inc.
Leslie de Boer

Friends of the Earth
Connie Parrish

The Foundation for San Francisco's
Architectural Heritage
Mark Ryser
Deputy Director

Gruen Gruen & Associates

Sue Hestor

Jefferson Associates, Inc.
Gordon Jacoby

Barry Livingston
Urban Center Development Limited

Bruce Marshall
San Francisco Muni Coalition

Planning Analysis & Development
Gloria Root

San Francisco Chamber of Commerce
Richard Morten

San Francisco Convention &
Visitors Bureau
George D. Kirkland
Executive Director

San Francisco Ecology Center

San Francisco Labor Council
Bernard Speckman

San Francisco Planning &
Urban Research Association

San Francisco Forward
Harriet B. Levy

San Francisco Tomorrow
Tony Kilroy

Sierra Club
Becky Evans

South of Market Alliance

South of Market Association
EOC Office
L. Meyerzove, Chair

Tenants and Owners Development Corp.
John Elberling

Calvin Welch
Council of Community Housing Organizations

ADJACENT PROPERTY OWNERS

State of California

Mission Shaw Properties

KSW Properties

Delta Finance Co. Ltd.

Bank of America Trust

Golden Gate University

MEDIA

Annette M. Granucci
Commercial News Publishing Co.

San Francisco Bay Guardian
Patrick Douglas, City Editor

San Francisco Business Journal
Kirstin E. Downey

San Francisco Chronicle
Evelyn Hsu

San Francisco Examiner
Gerald Adams

San Francisco Progress
E. Cahill Maloney

The Sun Reporter

Tenderloin Times
Rob Waters

LIBRARIES

Cogswell College Library

Document Library
City Library - Civic Center
Faith Van Liere

Environmental Protection Agency Library
Jean Circiello

Stanford University Libraries
Jonsson Library of Government Documents
State and Local Documents Division

Government Publications Department
San Francisco State University

Hastings College of the Law - Library

Institute of Government Studies
UC Berkeley

PROJECT SPONSOR

Bredero-Northern
Martin Hoek
Courtney Seeple

PROJECT ARCHITECT

Heller & Leake
Jeffrey Heller
Bob Baum

PROJECT ATTORNEY

Morrison & Foerster
Zane Gresham

APPENDIX B: WIND STUDY METHODOLOGY

This summary of wind study methodology is based on studies by Bruce R. White, Ph.D., Associate Professor of Mechanical Engineering at the University of California, Davis. The studies are independent of the University. These reports are available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

INTRODUCTION

Wind tunnel tests were conducted for winds in the project vicinity in its existing condition, and with the project and alternatives, in relation to the Downtown Plan wind performance criteria (adopted by the City Planning Commission, November 29, 1984). Wind tunnel measurements were used to predict equivalent mean wind speeds/1/ near the project site. These mean wind speeds were compared to comfort levels of 11 mph for pedestrian areas and seven mph for sitting areas.

A 1 inch = 50 feet scale model of the downtown San Francisco area surrounding the proposed building for several blocks in all directions was provided by Environmental Science Associates, Inc. The model tested three configurations: existing; project, and project with an extended wind screen. The approved project for 100 First Street was included in the model.

The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flows past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 feet), a test section of 1.22 m (4 feet) wide by 1.83 m (6 feet) high, and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from 1 to 4 meters per second (m/s) or 4.8 to 19.3 miles per hour (mph).

The wind tunnel study was divided into two parts: flow visualization and wind-speed measurements. The flow visualization observations were performed by injecting a continuous stream of smoke at various near-surface locations. The subsequent motion of the smoke was recorded, and prevailing wind directions were determined. Wind-speed measurements were made with a hot-wire anemometer, an instrument that directly relates rates of heat transfer to wind speeds by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. Both the mean wind speeds and corresponding turbulence intensities were measured. Thus, high wind speeds and gustiness (changes in wind speeds over short periods of time) could be detected. Hot-wire measurements made close to the surface have an inherent uncertainty of $\pm$ 5% of the true values. The ratio of near-surface speed to reference wind speed was calculated from the hot-wire measurements.

Twenty-four test locations were studied for four prevailing wind directions (northwesterly, west-northwesterly, westerly and west-southwesterly) for the four configurations. These wind conditions are the most common in San Francisco, and are therefore the most representative for evaluation purposes. All hot-wire measurements were taken at the same series of surface points around the building site for the four wind directions and the existing and project settings. Only the five points on the sun terrace (locations 21, 22, 23, 24, and 28) were tested in the third setting with the extended wind screen. Winds at the other locations are not likely to be affected by the wind screen along the terrace.

Methodology and Assumptions

The wind ordinance associated with the Downtown Plan (Section 148) is defined in terms of equivalent wind speed. This term denotes a one-hour average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence.

The mean wind speeds at street level were determined by a wind tunnel test, and a comparison of the test results with statistically representative records of wind data collected atop the Old Federal Building. Data describing the speed, direction and frequency of occurrence of winds were gathered at the Old San Francisco Federal Building, at 50 United Nations Plaza, during the six-year period 1945 to 1950. Hourly measurements have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00 a.m. to 8:00 p.m., about 62% of the winds blow from four of the 16 directions, as follows: Northwest (NW), 10%; West Northwest (WNW), 14%; West (W), 35%; Southwest (WSW), 2% and, all other winds, 36%; calm conditions occur 2% of the time.

Each wind tunnel test measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the old San Francisco Federal Building. The wind that is measured is an equivalent wind speed value which is adjusted to include the level of gustiness or turbulence present.

The frequency with which a particular wind velocity is exceeded at any test location is then calculated by using the measured wind tunnel ratios and a specified ground speed to determine the corresponding reference wind speed for each direction. In general, this gives different reference speeds for each direction (NW, WNW, W, WSW, and Other). The wind data for San Francisco are then used to calculate the percentage of the time each reference speed would be exceeded. The sum of these is the total percentage of time that the specified ground-level wind speed is exceeded. A computer is used to calculate the total percentages for a series of wind speeds until the speed corresponding to the speed exceeded 10% of the time is found. Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time.

Study Results

The results of the wind tunnel study are summarized in Figure B-1, together with the locations of the measurement points.

Existing Setting

Existing winds in the project vicinity range from three mph to eight mph. Winds do not currently exceed the applicable comfort criterion.

Project

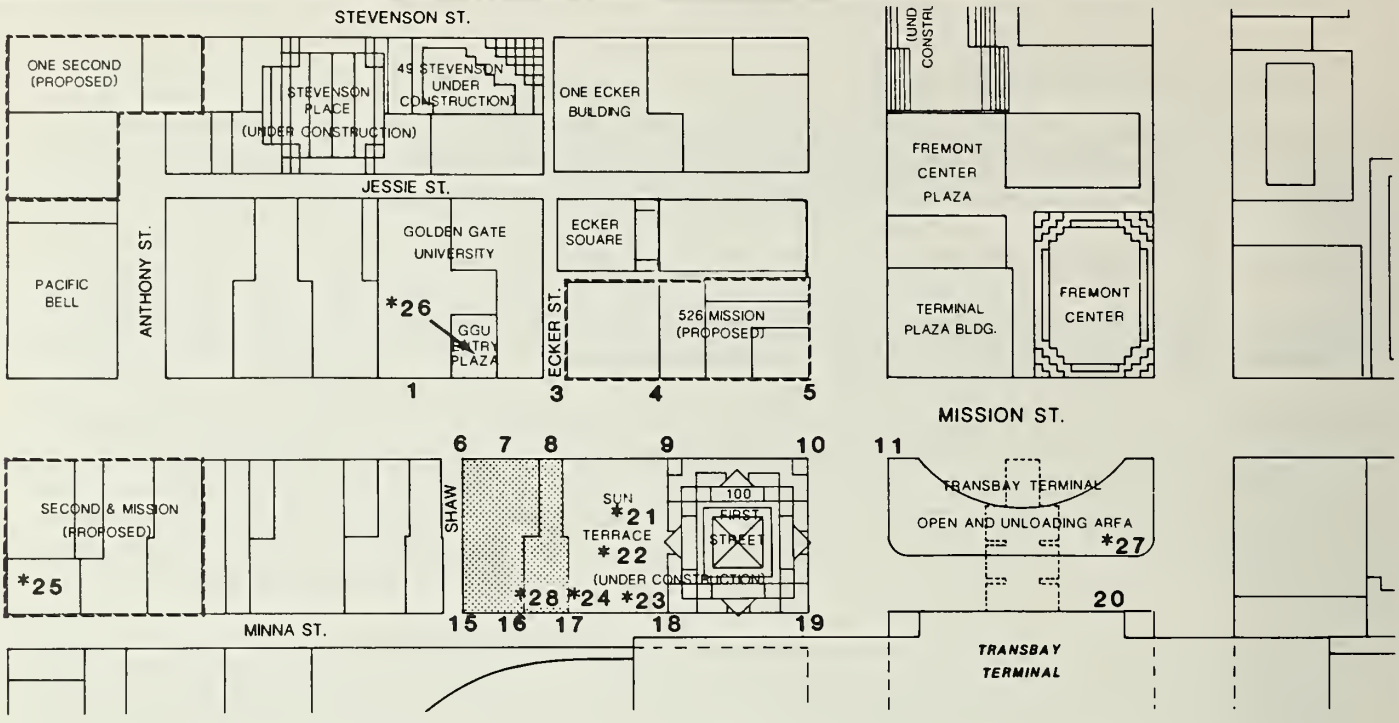
The project would result in winds which range from four mph to nine mph. The project would cause winds to decrease at five of the 24 locations. Winds would be unchanged at three locations and would be increased at 15 locations. One location (location 28) is not available for testing in the existing setting. Winds at each location would meet the applicable comfort criterion.

Project with Extended Wind Screen

The five locations on the terrace were retested with the wind screen extended along the edge of the sidewalk to the 535 Mission Street building. Winds would be one mph lower at three of the five locations with the extended wind screen.

NOTE - Wind Study Methodology

/1/ Equivalent mean wind speed is defined as the mean wind, multiplied by the quantity (1 plus 3 times the turbulence intensity) divided by 1.45.



PEDESTRIAN-LEVEL WIND SPEEDS (MPH) EXCEEDED 10% OF THE TIME

This table shows the wind speeds (mph) exceeded at pedestrian-level for 10% of the time. The locations are shown above. The comfort criterion established in Section 148 of the Downtown Plan is that speeds of 11 mph for pedestrian areas and seven mph for public seating areas are not to be exceeded more than 10% of the time.

Location	Criterion Speed (mph)	Existing	Project	Project with Wind Screen (+)
1	11	5	4	4
3	11	6	7	7
4	11	4	6	6
5	11	7	6	6
6	11	4	7	7
7	11	5	7	7
8	11	5	7	7
9	11	3	5	5
10	11	7	6	6
11	11	8	8	8
15	11	5	8	8
16	11	5	7	7
17	11	6	6	6
18	11	8	9	9
19	11	5	6	6
20	11	6	7	7
21	7	5	7	7
22	7	6	7	6
23	7	5	7	6
24	7	7	6	6
25	7	7	6	6
26	7	4	5	5
27	7	7	7	7
28	7		5	4

* EXISTING, UNDER CONSTRUCTION AND PROPOSED SEATING AREAS

PROJECT SITE

NOTE: There are no test locations 2, 12, 13, and 14.

(+) This scenario included a wind screen along the border of the project sun terrace.

0 200 FEET

SOURCE: BRUCE R. WHITE, Ph.D.

FIGURE B-1
NEAR-SURFACE LOCATIONS FOR WIND-SPEED MEASUREMENTS

APPENDIX C: ARCHITECTURAL RESOURCES

ARCHITECTURAL EVALUATION SURVEYS

The architectural ratings discussed in the text of this report (see Section III.B., p. 43), represent the results of three separate architectural surveys.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING INVENTORY

Between 1974 and 1976, the San Francisco Department of City Planning conducted a citywide inventory of architecturally significant buildings. An advisory review committee of architects and architectural historians assisted in the final determination of ratings for the 10,000 buildings, the results of which were entered in an unpublished 60-volume record of the inventory. The rated buildings are also represented on a set of color-coded maps which identify the location and relative significance of each building surveyed. The inventory and maps are on file at the Department of City Planning.

The inventory assessed the architectural significance of the surveyed structures from the standpoint of overall design and particular design features. Both contemporary and older buildings were included, but historical associations were not considered. Each building was given two numerical ratings, for architectural quality and for overall architectural significance, urban design context, and environmental significance. The latter rating is referred to in this report. The ratings ranged from a low of "0" to a high of "5". The architectural survey resulted in a listing of the best 10% of San Francisco's buildings. In the estimation of the inventory participants, buildings rated "3" or higher represent approximately the best 2% of the City's architecture.

HERITAGE SURVEY

The Foundation for San Francisco's Architectural Heritage, through its consultants, Charles Hall Page & Associates, Inc., conducted an architectural and historical survey of all downtown structures. In 1979, the original inventory results were published in the book Splendid Survivors (Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, San Francisco, 1979). A subsequent 1982 Heritage survey evaluated all structures in the C-3 zoning districts in areas not covered in the Splendid Survivors survey ("San Francisco Downtown Architectural Survey: C-3 Zoning District, Final Evaluated List", December 1, 1982). The expanded inventory has not been formally published by Heritage. Criteria considered in rating the buildings for both surveys include Architectural Significance, Historic Context and Negative Alterations. Summary ratings from "A" to "D" were assigned to each building on the basis of these scores. The summary ratings, as described on pp. 12-13 of Splendid Survivors, are listed below:

A. "Highest Importance. Individually the most important buildings in downtown San Francisco, distinguished by outstanding qualities of architecture, historical values, and relationship to the environment. All A-group buildings are eligible for the National Register, and of highest priority for City Landmark status."

B. "Major Importance. Buildings which are of individual importance by virtue of architectural, historical, and environmental criteria. These buildings tend to stand out for their overall quality rather than for any particular outstanding characteristics. B-group buildings are eligible for the National Register, and of secondary priority for City Landmark status."

The Landmarks Preservation Advisory Board does not distinguish between "A" rated and "B" rated buildings for purposes of preservation.

C. "Contextual Importance. Buildings which are distinguished by their scale, materials, compositional treatment, cornice and other features. They provide the setting for more important buildings and they add visual richness and character to the downtown area. Many C-group buildings may be eligible for the National Register as part of historic districts."

D. "Minor or No Importance. Buildings which are insignificant examples of architecture by virtue of original design, or more frequently, insensitive remodeling. This category includes vacant buildings and parking lots. Most D-group buildings are sites of opportunity."

Not Rated. Buildings which have been built or suffered insensitive exterior remodelings since 1945.

ARCHITECTURALLY AND/OR HISTORICALLY SIGNIFICANT BUILDINGS IN THE DOWNTOWN

The City Planning Commission adopted by Resolution No. 8600 (May 29, 1980), a "List of Architecturally and/or Historically Significant Buildings in The Downtown," based on the above described surveys. Generally, buildings rated "3" or higher in the DCP survey or "A" or "B" in the original Heritage survey (Splendid Survivors) were placed on the list. The expanded Heritage survey (1982) has not been adopted by the City Planning Commission to date.

The purpose of the list is to advise developers and building owners of the importance the City places upon the buildings' conservation and to require special review by the Commission of any plans which would affect any building or buildings on the list. Resolution No. 9240 (November 19, 1981) reaffirms the Commission's concern for preservation of architecturally significant buildings and acknowledges the Director's intent to recommend denial of projects that propose to demolish significant buildings. No buildings on the project site are included on this list.

DOWNTOWN PLAN CATEGORIES

The Downtown Plan establishes four categories of architecturally important structures. The Plan states (p. 66) "This Plan proposes a preservation strategy that would require that 271 buildings (called significant buildings in this Plan) be retained, while providing incentives to encourage the retention of 223 other important, but less significant buildings (called contributory buildings). They are shown on Map 12. Both classes of buildings would be entitled to 'Transferable development rights.'"

The following material, taken from the Plan, describes the categories and briefly identifies preservation strategies.

Significant Buildings

Those buildings of the highest architectural and environmental importance--buildings whose demolition would constitute an irreplaceable loss to the quality and character of downtown--would be required to be retained. There are 271 of these buildings. They include all buildings rated by Heritage as excellent in either architectural quality or relationship to the environment, or very good in both. (This covers all buildings rated "A" by Heritage and most of the buildings rated "B".)

These buildings--referred to in the Plan as significant buildings--are divided into Category I and Category II, the difference being in the extent of alteration allowed ... . There are 235 significant buildings in Category I ([listed] in Table 4 [of the Plan]) and 37 significant buildings in Category II... .

Contributory Buildings

The Downtown Plan proposes to encourage, but not require, retention of other buildings contributing to the quality and character of downtown. these buildings, called contributory buildings, consist of two groups:

Category III

--- Buildings rated very good in architectural quality, but lower than very good in relationship to the environment, or vice versa, and located outside conservation districts. (These buildings were rated "B" by Heritage.) There are 21 of these buildings. They are listed on Table 6 [of the Plan].

Category IV

--- Buildings rated very good in architectural quality, but lower than very good in relationship to the environment or vice versa and which are located in a conservation district. (These buildings were rated "B" by Heritage.) There are 15 of them.

-- Buildings with "contextual value" to a conservation district. These contextual buildings are buildings that themselves are not highly rated in architectural quality and relationship to the environment, but do make a substantial contribution to the "quality" of an area that contains a number of highly-rated buildings and that is proposed to be given special protection as a conservation district. (These buildings were rated "C" by Heritage.) The 201 Category IV buildings are listed in Table 7 [of the Plan].

Four conservation districts are established by the Plan:

District 1: Kearny-Market-Mason-Sutter Conservation District

District 2: New Montgomery–Second Street Conservation District

District 3: Commercial–Leidesdorff Conservation District

District 4: Front–California Conservation District

The Downtown Plan does not allow transfer of development rights to parcels when such transfer would result in the substantial alteration or demolition of a Significant or Contributory Building.

APPENDIX D: TRANSPORTATION

TABLE D-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00–0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51–0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76–1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movement for passengers requires longer loading times.	1.01–1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26–1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51–1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE.
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. - Inbound

SOURCE: ESA

FIGURE D-1
PHOTOS OF MUNI PEAK LOADING CONDITIONS

K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M.-Outbound

38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound

38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

FIGURE D-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

SOURCE: ESA

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Inbound

SOURCE: ESA

FIGURE D-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table D-1 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure D-1 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE D-2: PEDESTRIAN FLOW REGIMEN

Flow Regime/a/	Choice	Conflicts	Flow Rate (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure E-2.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

SOURCE: Pushkarev and Zupan

FIGURE D-2
PHOTOS OF PEDESTRIAN FLOW LEVELS

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

SOURCE: Pushkarev and Zupan

FIGURE D-2 (CON'T.)
PHOTOS OF PEDESTRIAN FLOW LEVELS

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table D-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE D-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE D-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

APPENDIX F: AIR QUALITY

TABLE F-1: SAN FRANCISCO AIR POLLUTANT SUMMARY, 1981-1984

STATION: 900 23rd Street, San Francisco

POLLUTANT:	STANDARD	1981	1982	1983	1984/i/
OZONE (O^3) (Oxidant)					
1-hour concentration, ppm/a/					
Highest hourly average	0.10 /b/	0.12 /c/	0.07	0.08	0.13	0.10
Number of excesses of state standard			0	0	1	1
Expected Annual Excess (federal)/d/			0.0	0.0	0.3	-
CARBON MONOXIDE (CO)						
1-hour concentration, ppm						
Highest hourly average		20 /b,e/	8	12	7	-
Number of excesses of standard			0	0	0	-
8-hour concentration, ppm						
Highest 8-hour average		9 /b,c/	5.3	9.1	5.1	10.8
Number of excesses of standard			0	1	0	1
TOTAL SUSPENDED PARTICULATE (TSP)						
24-hour concentration, ug/m^3/a/						
Highest 24-hour average		100 /b,f/	103	126	117	-
Number of excesses of standard/g/			1	3	4	5
Annual concentration, ug/m^3						
Annual Geometric Mean		60 /b,f/	56	57	55	60
Annual excess of standard			No	No	No	Yes
LEAD (Pb)						
30-day concentration, ug/m^3						
Highest 30-day average		1.5 /b/	0.6	0.7	0.4	-
Number of excesses of standard			0	0	0	-
NITROGEN DIOXIDE (NO_2)						
1-hour concentration, ppm						
Highest hourly average		0.25 /b/	0.11	0.13	0.13	0.14
Number of excesses of standard			0	0	0	0
SULFUR DIOXIDE (SO_2)						
24-hour concentration, ppm						
Highest 24-hour average		0.05 /b/	0.016	0.012	0.018	0.03
Number of excesses of standard/g,h/			0	0	0	0

/a/ ppm: parts per million. ug/m^3: micrograms per cubic meter.
/b/ State standard, not to be equaled or exceeded, except for CO standards, which are not to be exceeded.

(Continued)

TABLE F-1: SAN FRANCISCO AIR POLLUTANT SUMMARY 1981-1984 (Continued)

/c/ Federal standard, not to be exceeded more than once per year, except for annual standards, which are not to be exceeded.
/d/ Expected Annual Excess is a three-year average of annual excesses of the federal standard.
/e/ The state one-hour CO standard was revised from 35 ppm to 20 ppm in January 1983. The federal one-hour standard remains 35 ppm.
/f/ The California ARB has redefined the state particulate standard to apply to "inhalable" particulates only (i.e., those which have a diameter less than ten microns). The new standards are 50 ug/m^3 for 24-hour averages and 30 ug/m^3 for the annual geometric mean. No data is currently available on the particle size distribution of the TSP sampled at the San Francisco monitoring station.
/g/ Number of observed excess days (measurements taken once every six days).
/h/ Exceeding the SO_2 standard is a violation only if a concurrent excess of the state ozone or TSP standards occurs at the same station. Otherwise, the federal standard of 0.14 ppm applies.
/i/ 1981-1984 data collected at 900 23rd Street

SOURCE: BAAQMD, 1981 - 1983, Air Quality in the San Francisco Bay Area; and California ARB, 1981 - 1984, California Air Quality Data.

APPENDIX F: TYPICAL NOISE LEVELS

	Decibels	
	110	Pile driver (from 50 feet)
Very Loud	100	
		Light helicopter take-off (from 125 feet)
	90	
		Diesel truck (from 50 feet)
	80	
Loud		Radio or TV playing in Living Room
	70	
		Passenger car on city street (from sidewalk)
	60	
Quiet	50	
	40	
		Whisper
Very Quiet		
		Rustle of paper
	30	

SOURCE: Department of City Planning, "A Proposal for Citizen Review: Transportation Noise, Environmental Protection Element of the Comprehensive Plan of San Francisco," August 1984.